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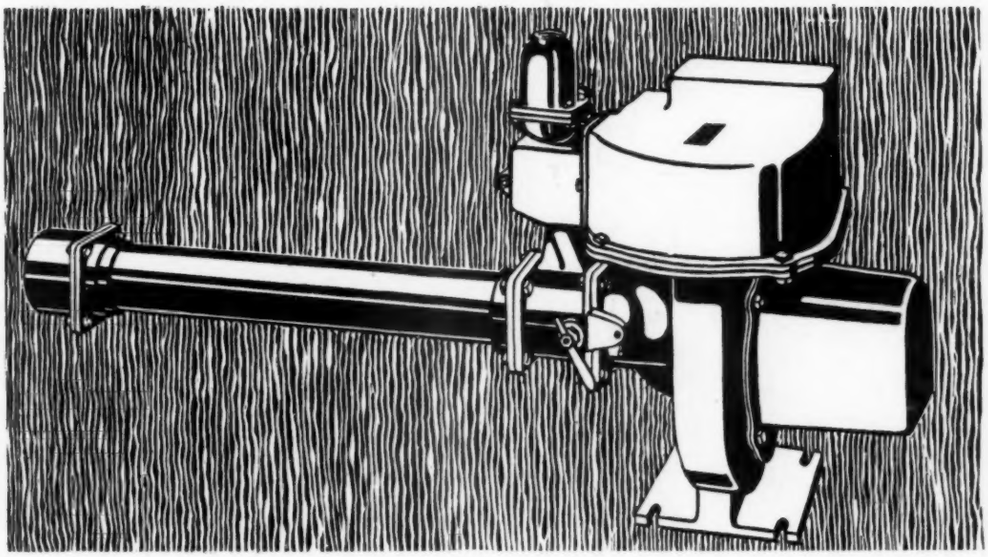

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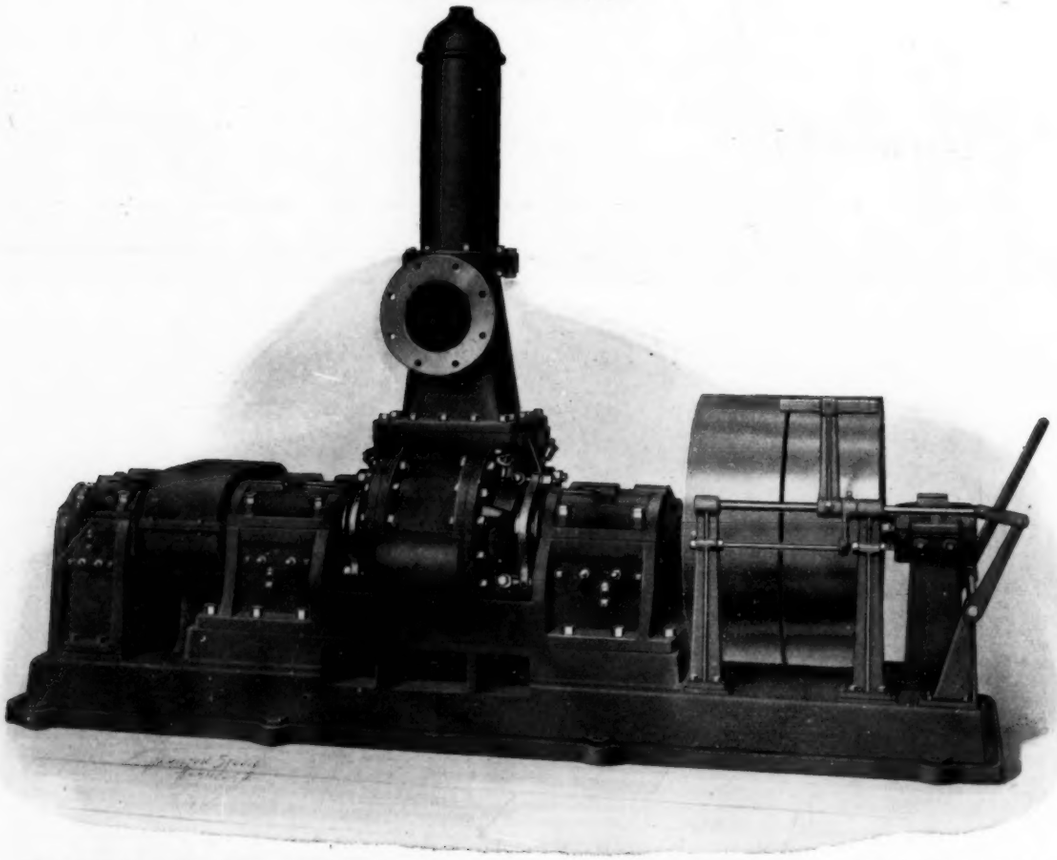

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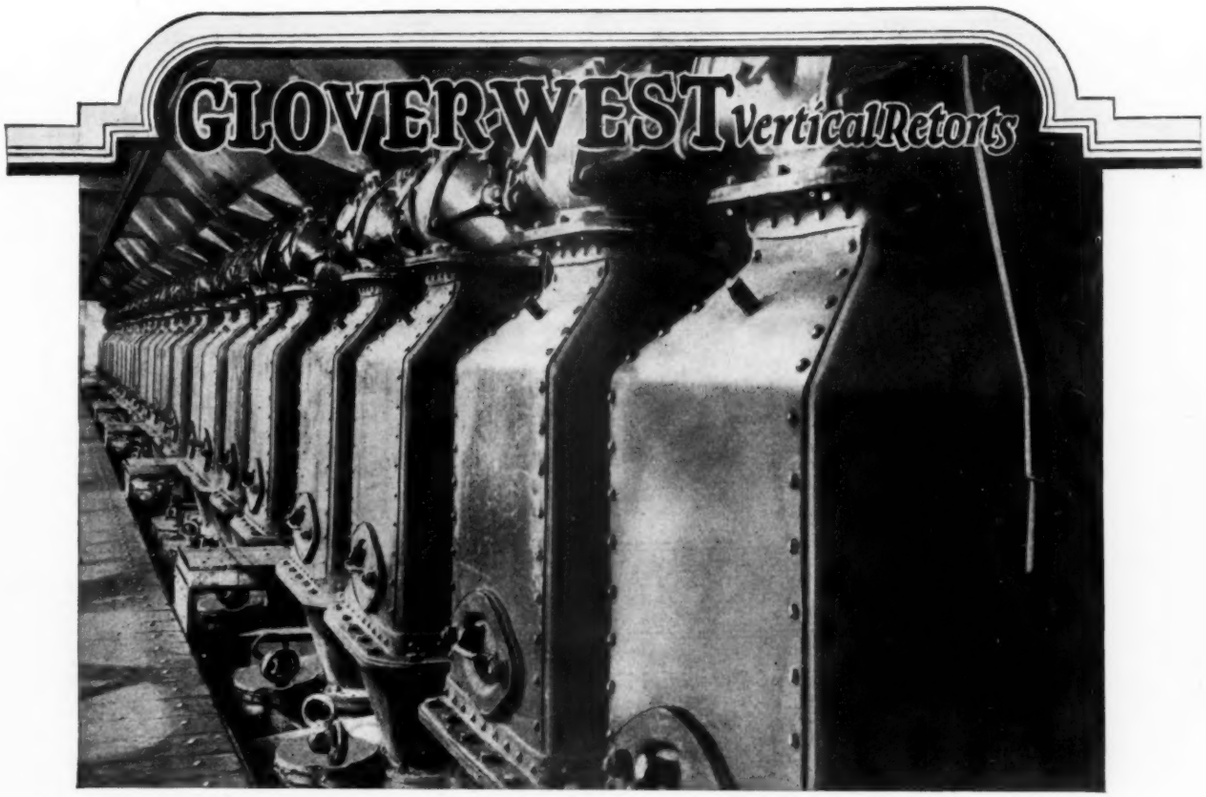


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# American Gas Journal

*SIXTY FIFTH YEAR*

*Published Weekly by American Gas Light Journal, Inc., 53 Park Place, New York, N. Y.*

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# Standardization of Industrial Products Making Headway

## Progress of industrial standardization during 1923

*A. W. Whitney*

Chairman, American Engineering Standards Committee

**One of the most important movements in industry is the standardization of raw materials, processes of manufacture and manufactured products. The gas industry, through its trade association, has also been active along these lines. Some success has been attained, particularly in regard to water heater boilers. The following article descriptive of the progress of industrial standardization during the past year should be especially interesting to gas men.—Editor.**

DURING the past year, industrial standardization has continued to develop as one of the most active and important phases of American industry. Progress has been made in the standardization of raw materials, manufacturing processes and finished products. This is equally true whether looked at from the point of view of the factory, of the industiral or technical association, or of a national movement.

### Use of Specifications in Public Purchases

A striking development is the increased systematic use of specifications in public purchases, notably in the Federal and in several of the State governments. The National Association of Purchasing Agents and the National Council of Governmental Purchasing Agents are devoting much time and attention to the subject. At the direction of Mr. Hoover, the Department of Commerce is preparing to publish a "Dictionary of Specifications for Public Purchases," which will make easily available information as to what specifications are in existence, to what classes of use they apply, and how they may be obtained.

The Federal Specifications Board has completed the second year of its activity. In this, the American Engineering Standards Committee has co-operated by obtaining criticisms from the various interested industries of proposed specifications of the Federal Government before the specifications are finally adopted by the board. To date the board has adopted approximately 90 specifications, and the committee has secured criticism of industry on about the same number. From these systematic efforts to bring governmental purchases in line with the best commercial practice, important economies both to industry and government are resulting.

### Efficiency of Standardization

The Division of Simplified Practice of the Department of Commerce continues to exert a most stimulating influence on the standardization movement, particularly in emphasizing the efficiency results of standardization to the business man.

Through the organization of the American Marine Standards Committee, work has been initiated in this important industry. Very little in this field has heretofore been done in this country, although very considerable activity has been going on for some time in Germany and Great Britain.

### Standardization Developed on National Scale

The most striking aspect of the movement for industrial standardization is the development of standardization on a national scale. More than 150 undertakings now have official status before the American Engineering Standards Committee, the national clearing house for standardization. Fifty standards have received final approval by the committee, 22 of which were approved during 1923. The importance of the broadly democratic methods followed in this clearing-house work is receiving increasingly widespread recognition. In it all parties concerned with any standard, producers, consumers and representatives of the public and government, participate (1) in deciding whether the work should be undertaken at all, (2) in formulating the standard, and (3) in its ultimate approval. Thus the industries are developing and using such standards as best fits their needs, without danger of such technical industrial matters becoming subject to legal enforcement or to gov-

ernmental pressure. Is it not probable that many other of our important industrial problems will find their solutions by closely analagous methods?

### International Conference

In July, the second conference of the national industrial standardizing bodies was held in Switzerland, where 13 of the more important industrial nations of Europe and America were represented. Important progress was made in developing co-operation between the various national bodies, particularly in regard to the early release to each other of information on work in progress. Information on the status of all projects in hand is now regularly interchanged between the various bodies. Provision was made for continuing the work of the conference on the many problems of common interest through a continuing loose-knit organization.

There are now national industrial standardizing organizations in 16 countries: Australia, Austria, Belgium, Canada, Czecho-Slovakia, France, Germany, Great Britain, Holland, Hungary, Italy, Japan, Norway, Sweden, Switzerland and the United States. Of these, the work in Great Britain, Germany and the United States is the most extensive, as would be expected from the scale of the industrial development in these countries.

### Standardization and Foreign Trade

Of interest not only in its relation to international standardization, but also on account of its bearing on the use of specifications in foreign trade, is the resolution passed by the last conference of the Pan American Union, where it was decided "That a conference on standardization of specifications of materials, tools, machinery and supplies be held . . . with a view to reaching agreements which may be embodied in Inter-American conventions on this subject." This projected movement will be watched with great interest by American industries.

### Standardization and Trade Associations

Standardization continues to play a more and more important role in the activities of trade associations. The subject is treated at length in the book on "Trade Association Activities," issued by the Department of Commerce during the year. It is of more than passing interest that the Supreme Court in a recent decision in regard to trade association activities, explicitly recognized standardization as being in the public interest.

# New England Gas Engineers Hold Annual Meeting

## Many interesting features in program

The program of the annual meeting of the New England Association of Gas Engineers, which was held in Boston on February 13 and 14, 1924, was very comprehensive in scope, and, as is customary, was composed of two distinct parts. One part consisted of set papers prepared by members of the association and printed in advance and the other part was composed of a series of seven subjects and questions for discussion.

The meeting was opened by President Paige with an address in which he reviewed the work done during the past year and offered certain recommendations in regard to future work. He emphasized in particular the great potential field for gas appliances in New England, the assistance that is being rendered by the American Gas Association and the various other gas associations in New England. He also had a few words to say regarding the importance of the prone pressure method employed in inducing artificial respiration in first aid work in gas works. He emphasized the importance of house heating by gas and described the developments that have taken place in New England, particularly the experiment that is being conducted at Pawtucket. In this connection he particularly stressed the significance of the gas rate on development of this business.

The educational undertakings of the association in conjunction with the Gas Sales Asosciation of New England and New England Guild of Gas Manufacturers, known as the Industrial Gas Class of Massachusetts Institute of Technology, was also given attention, and the marked growth of the class in the past year was commented upon.

In finishing his address, which is published in full in another part of this issue of the American Gas Journal, President Paige made a recommendation which is of great importance to gas men in New England. He advised a combination of the various gas associations of New England into a single association to be known as the New England Gas Association, to be divided into sections, each dealing with a particular phase of the gas business, organized in much the same manner as the American Gas Association.

### Commissioner Wells Emphasized the Importance of Direct Reading Meters

The next speaker on the program was Henry G. Wells, of the Department of Public Utilities of Massachusetts. Mr. Wells spoke on the subject of company relations, and told the gas men that his talk was to be taken in the spirit in which it was delivered, as a friendly criticism of the gas companies and a frank review of their failings as he could see them. He emphasized the importance of teaching gas company employees the proper spirit to maintain towards the public. He suggested that the gas companies con-

sider carefully the matter of telephone calls and letters as points of contact between them and their customers, and the necessity of avoiding the creation of a feeling of unfriendliness through improper replies to complaints by mail and curt answers over the 'phone. The importance of carefully selecting the employees who attend to complaints was also emphasized.

The commissioner had quite considerable to say regarding the errors that occurred in meter readings as being a large cause of complaints against gas companies. The difficulty that was experienced by the average intelligent person reading a gas meter was brought out by citing several examples of cases in which customers have complained of high gas bills, due to their inability to understand how the meter records the amount of gas consumed. The importance of the adoption of a direct reading meter from which anybody might tell the quantity of gas consumed was gone into detail by Commissioner Wells, who said that in his opinion it was one of the most important steps that the gas company could take in improving public relations. In the course of his talk he mentioned that there were in the year 1923, 347 complaints to the Utility Commission from a total of over half a million customers in the State of Massachusetts. This really is a wonderful record.

### Major Forward Tells of the Activities of the A. G. A.

The next speaker, Major Forward, secretary-manager of the American Gas Association, told of the various activities of the association and the different ways in which it was co-operating with the state associations throughout the country. This was the first official address by Major Forward since he assumed the office of secretary-manager of the American Gas Association. His address is printed in full in another part of this issue.

### Prominent English Gas Man Addresses the Meeting

The members of the New England Association of Gas Engineers then had the pleasure of listening to a short talk by Sir Arthur Duckham, a gas engineer of prominence in England. He had a few words to say regarding his experience with total gasification and low temperature distillation, and pointed out that these questions were still far from being solved. He made a very pertinent remark regarding the change that has taken place in the period of ten years, since he last visited New England, as far as the use of smokeless fuel was concerned. "A decade ago," he said, "practically everybody used anthracite coal, and now it appears that a great number of people have begun to use soft coal, with the resultant contamination of the air and of the cleanliness of the city." He said that this constituted a potent argument in favor of the use of gas and the production of a cheaper gas to replace the dirty soft coal fuel.

The next speaker to address the meeting was Mr. Samuel MacQuarrie, Director of New England Bureau of Public Service Information. Mr. MacQuarrie discussed the various activities of the Bureau and emphasized the importance of maintaining friendly relations with the editors of newspapers in various cities and towns wherein gas companies operated. He said that gas men should realize that the public is interested in news regarding public utilities, particularly the gas utility, but that in order to gain the confidence of the public it was absolutely neces sary that this news be accurate in every detail.

### Standardization of Meters

The meeting was then addressed by Mr. Walton Forstall, who talked on the work that the A. G. A. Committee on standard capacity of consumers' meters was doing in an effort to secure the adoption of standard size meters. Mr. Forstall made a plea for a thorough discussion of this subject and asked the gas men to take a stand once for always as to whether or not they wanted to have a standard size of meter adopted. If so, he said they ought to take active steps to assist the committee in its work, and, if not, he thought it would be well to have the committee discharged from further consideration in the matter.

In the discussion that developed after Mr. Forstall's address, Mr. H. A. Norton, manager of the Tufts Meter Works, Boston, Mass., advised that, if the gas companies were going to adopt standard sized meters, they had better adopt one that would meet the demands of expansion in the business, in other words, a meter which would enable them to take care of the customers' demands, not only at the present time, but in the future, as well. He advocated the adoption of the large type of meters, about 250 to 300 feet capacity.

### Uniform Classification of Accounts

President Paige then called attention to the fact that the states of Vermont, New Hampshire and Rhode Island, of the New England Division, have not as yet adopted uniform classification of accounts, and he urged upon the members of the gas fraternity from these states to work towards that end.

### Internal Corrosion of Holders

The next matter on the program was the discussion of the subject of internal corrosion of holders. Mr. F. C. Freeman, of Providence, was called upon to read a paper which was prepared by Mr. Sneere, of Chicago. This paper constituted a very excellent discussion of the cause of internal holder corrosion. It was mentioned that this was mainly due to sulphuretted hydrogen, oxygen and cyanogen constituents of the gas. The author of the paper specifically stated that he did not want to appear as an alarmist in this connection, but that there is a certain amount of corrosion that takes place in the interior of a holder, which was more or less a serious matter for the simple reason that it might not be ascertained until such time as the holder actually fails.

Mr. McCurdy, of the Bartlett-Hayward Company, was then called upon to take part in the discussion, and in his talk he mentioned the fact that it had been found that a film of oil on the water seal of the

holder appears to have a very beneficial effect in preventing corrosion of the lifts. He also emphasized the fact that the most serious part of the whole matter was the difficulty of telling to what extent the corrosion has taken place while the holder is in use.

Mr. Peary of Philadelphia, also took part in the discussion, and developed the fact that cyanogen compounds in the coal gas are the principal cause of internal holder corrosion.

The meeting then adjourned to the afternoon.

### The Tar Industry and Its Connection With the Gas Industry

The first item on the program in the afternoon of the first day's meeting, February 13, was a talk by Mr. James H. Readio on the tar industry and its connection with the gas industry. Mr. Readio prepared a very thorough paper on the subject and read a short abstract from the same. That tar is a very important chemical raw material is very well known to every gas man, but is not so well appreciated that the gas company can be of real help to the tar distiller in exercising proper care in tar recovery. The principle point that must be looked out for in the recovery of the tar is to produce it as free as possible from water.

In an interesting discussion following the reading of the paper, in which Messrs. H. Vittinghoff, L. J. Willien and Robert Lindsay of New Bedford took part, Mr. Lindsay called attention to the fact that his company in New Bedford, the New Bedford Gas and Electric Light Company, was distilling water gas tar which produced a pitch which has a ready sale for road-making purposes.

### Liquid Purification

The next matter that came up for discussion was the question of results obtained by liquid purification. The main talk on this subject was delivered by Mr. Charles A. Learned, the general manager of the Meriden Gas and Electric Company, of Meriden, Conn. Mr. Learned described the operation of the liquid purification plant that his company had been using for the past few months, and discussed the results obtained therefrom. He said that the plant worked successfully, that all the sulphur and cyanogen were eliminated from the gas. He claimed that there was no damage done to buildings by the gases that were discharged into the air, and that these gases were shot out into the upper air through a 100 ft. stack. He said that at the present time there was no difficulty from the odor, but that he was not positive what effect the hot weather would have in this connection. He mentioned the fact that the cost of purification was a little over 1 cent per 1,000 cu. ft. of gas, but that this was dependable to a large degree upon what price was charged for power.

In the discussion that followed, Mr. J. F. Wing, chief chemist of the Boston Consolidated Gas Company, mentioned the fact that the Boston company had installed a liquid purifier in one of its plants but that this had not yet been placed in operation. He said that the foul air was gotten rid of by sucking it into the generators which produce water gas.

### Continued Inventory of Fixed Capital

The next paper was read by Mr. A. J. Smith, manager of the Concord Light and Power Company, Concord, N. H. His subject was the continuous inventory of fixed capital. In his address, which is published in full in this issue of the Journal, the importance of maintaining such an inventory was clearly explained. There are three outstanding advantages that the gas company which maintains such an inventory will derive therefrom, viz.: ability to appear before a commission, or the courts, in the development of a rate; obtaining an invaluable record necessary in an application for the issuance of additional securities, and the advantages which are evident in supplying information in connection with writing off, upon the books, property retired from service.

Quite an interesting discussion followed and at the end of the same the meeting adjourned till the next day.

### The Gas Company as a Merchandiser

At Thursday morning's meeting a paper entitled "The Gas Company as a Merchandiser" was read by Mr. J. J. Quinn, vice-president of the Citizens Gas Light Company of Quincy, Mass. Mr. Quinn's paper, which is published in full elsewhere in this issue, is concerned with a very live topic, the necessity of a gas company putting forth every effort to increase sales of gas appliances, and the methods it can use in accomplishing the same. One particular point that was brought out in his talk was the need of the establishment of some sort of equitable standards to be used by the commercial department of the gas company in determining whether its sales were up to the mark or not.

Quite a lively discussion took place after the reading of this paper, in which Messrs. Edward J. Cooney, sales and service manager of the Lowell Gas Light Company, Lowell, Mass., Mr. Wm. Gould, commercial manager of the Gas and Electric Improvement Company, Boston, Mass., and Mr. A. K. Burr, sales agent, New Haven Gas Company, New Haven, Conn., took active part. All agreed with the various contentions brougth out by Mr. Quinn in his paper.

### Changes in Rate Structure

The next question to be discussed was the results of changes in the methods of charging for gas service. Mr. G. H. Priest, general manager of the Brockton Gas Company, Brockton, Mass., opened the discussion. Mr. Priest gave a very concise statement of the results his company had obtained in changing the method of charging for gas. It was brought out that the Brockton Gas Company charged a uniform rate of $1.05 per thousand cu. ft. of gas in 1916, which was increased to $1.15 in 1917, and further increased it to $1,25 in 1918, and again to $1.45 in 1919. In 1920 the block system of rating was introduced. The first 100 feet charge was 70c per 100. The next 400, 20c per 100. The next 19,500 cu. ft., 12c per 100. The next 30,000 cu. ft., 11c per 100, and 50,000 and over, 10c per 100. This rate was soon increased by 2c per 100

for each block, with the exception of the first. This yielded an average rate of $1.85 per 1,000 cu. ft.

In 1921 the rates were reduced as follows: First 100 cu. ft., 70c; next 400 cu. ft., 21c; next 19,500 cu. ft., 13c; next 30,000 cu. ft., 12c; 50,000 and over, 11c. Eventually these rates were reduced by 1c per 100 with the exception of the first. These rates are in operation at the present time. The interesting thing to determine was the effect of these rates on the consumption. The consumption of gas per meter per year in the State of Massachusetts averaged over 30,000 cu. ft. last year.

The sales of gas per meter per year of the Brockton Gas Company have been as follows:

| | |
|---|---|
| 1916 | 19,150 |
| 1917 | 19,980 |
| 1918 | 20,490 |
| 1919 | 20,260 |
| 1920 | 21,450 |
| 1921 | 21,470 |
| 1922 | 22,630 |
| 1923 | 23,840 |

It will be noticed that in 1920 the sales showed a very marked increase after the sliding scale or block system of rate structure was introduced. The sales of gas in the last three years in this company increased from 386,000 cu. ft. per year to 523,000 cu. ft. The company has no industrial customers, as Brockton is a shoe town, and heat is not used in the manufacture of shoes; so the entire increase of consumption is due to the increase of gas used by domestic customers.

Mr. J. A. Norcross, treasurer of the New Haven Gas Company, New Haven, Conn., was then called upon to tell about the experiences of the New Haven Gas Company with service charge. This charge was installed in 1920 and amounted to 50c per meter. A considerable amount of commotion was caused by the introductoin of this charge, but after a period of two years most of the consumers, except a small minority, were convinced of the justice and reasonableness of the same. However, due to the continued agitation by this small group, it was thought advisable in 1922 to adopt the block system wherein the service charge of 50c per meter was retained in principle. The block rate system consists of a charge of 50c for the first 100 cu. ft. of gas, 10½c per 100 up to 40,000 cu. ft. and above a million, 70c per 1,000 net.

The company has succeeded in getting considerable industrial business on these rates.

The next speaker discussed the experiences of the Providence Gas Company along the same lines. The consumption of gas per meter during the year of 1923 was 36,000 cu. ft. The company uses a sliding scale of rates in addition to the service charge of 50c per meter. It has considerable industrial business, its largest customer being a finishing company using 20,000,000 cu. ft. per year. He emphasized the importance of the rate in obtaining new business, and also the fact that as far as house heating was concerned, in order for the gas company actually to benefit from this business, it would be necessary to charge the consumer for the gas on the basis of a two-part rate at least, one of which parts being a charge for demand, and the other a charge for commodity.

### Action of Gas on Oil in Diaphragm

The net speaker on the program was Mr. T. A. Mighill, who read a very interesting paper on the action of gas and light condensates on the oil in diaphragm leathers.

The reading of this article was followed by a discussion.

In the afternoon the rest of the program was run through, which consisted of the reading of an article on results obtained with the Back-Run Apparatus at the Worcester Gas Light Co., by E. H. Bauer of Worcester, Mass., and the discussion of the following subjects: Life of Steel Main in Cities; What is the Policy of the Companies in the Matter of Insurance?

During the two-day meeting of the association the subjects, "What Does Your Steam Cost per M at the Boiler?" and "Gummy Deposits in Distributing System," were also discussed.

## TUNE INTO SOMETHING BIG

**Frank Farrington**

Let me ask you one question. Do you know of any man whose name appears in history as one of the great men of his time who was not a student, a reader, devoting the development period of his life a large part of his mental energy in learning what other men before him had discovered about his work?

You picture Lincoln in his boyhood reading by the firelight, an insatiable student of books upon the subjects of interest to him.

You learn that Thomas Jefferson spent fifteen hours daily in study.

You know that Theodore Roosevelt was an omnivorous reader and at an early age was able to write books that showed the good purpose to which his reading hours had been put.

You realize that men of achievement of all times have accumulated libraries of literature about their work.

What man could ever climb to the heights of his occupation while learning only through his own experience and his own mistakes?

The man who is to become a top-notcher is going to be the man who is able to profit by the mistakes of others and by their experiences; a man who does not merely blunder ahead, finding out everything for himself and making the same mistakes a thousand other men have made.

You can start where others have left off.

If you hope to reach prominence in your field of work, if you hope to be successful, be a student of the literature of your business. Read something worth while. Don't waste your reading moments over the pages of the multitude of magazines of "Snappy Stories," "Fiery Fiction" and "Hollywood Hop."

(All rights reserved)

# A Greater New England Gas Association*

## Many important recommendations made by the retiring President of the N. E. A. of Gas Engineers

*C. E. Paige*

Vice-President C. H. Tenney Co., Boston, Mass. (Retiring President, N. E. A. of Gas Engineers)

GENTLEMEN of the New England Association of Gas Engineers, we are gathered together for our fifty-fourth annual convention.

I should like to bring to your minds some of the questions which are before the industry and to which your directors have given consideration.

### General State of the Industry

The outlook for sendout is decidedly optimistic. There are some companies whose output has fallen off as compared with last year. The reasons are obvious. Taken altogether, the sendout shows a gain. Companies report an encouraging sale of domestic as well as industrial appliances.

There may be local cases where in combination companies, electric appliance sales meet with less selling resistance than appears to be the case with gas appliances. The smaller electrical appliances have great advantages in portability and adaptability.

The installation costs of these types of appliances are almost nothing because a man may carry them home under his arm, plug into a socket and have service. The gas appliances are heavy and, in practically all cases, must be rigidly connected. This involves getting the services of a gas fitter. Until there are marked changes in design the gas man is confronted with serious competition in his effort to put out small domestic appliances.

### Great Potential Field for Gas Appliances

In spite of these fact,s our industry has wonderful possibilities in the development of gas for cooking and heating water. We have a great potential field for gas appliances. It only awaits further effort to produce still better returns.

The Gas Sales Association is doing a wonderful work in stimulating the sale of gas appliances. This organization, though young in years, has created and maintained a fine enthusiasm for the slogan, "If it's done with heat, you can do it better with gas."

Committees from this association, working with similar committees from the Gas Sales Association and the Guild of Gas Managers, put on a gas exhibit at the Home Beautiful Exposition. This exposition was held at Mechanics Hall in Boston last April. Thousands of people visited the exhibit and learned of the possibilities of our product.

*Delivered at the annual meeting of the New England Association of Gas Engineers, Boston, Mass., February 13 and 14, 1924.

### Public Relations

Much has been said; some things have been done. Apparently, everybody believes in it. There are doubtless many who would like to feel that they are doing more. It is such a big subject with such an imposing title. Isn't what we are after a development of friendliness? I can see no more practical way of accomplishing our result than an every-day application of the principles of the Golden Rule. While it is vitally important to treat customers well, it is just as necessary to deal fairly with employees. They are the company's emissaries, and while a manager may be individually qualified as a Public Relations' expert, his effort must be supported by his associates, and their confidence in his enterprise.

A great potential force lies ready to hand—we have but to encourage its growth to realize handsome dividends in friendly relations.

I cannot leave this subject without a word of appreciation for the New England Bureau of Public Service Information. It is doing good work and our industry's representatives on the bureau are ably handling our interests.

### Accident Prevention

The attitude of gas companies toward the prevention of accident is most commendable. Surely there can be no argument against an activity which contemplates the saving of life and property.

Many companies have safety committees, working always toward minimizing hazards and reducing risks.

Great interest is being taken in instructing employees in the prone pressure method of artificial respiration. This method is so simple, so effective, and so vital that it should be made a feature of instruction in our high schools.

I believe where companies give instruction in artificial respiration local doctors should be invited to attend.

We have an opportunity to render a public service, and with the doctors' co-operation this service can be made of great value to the community.

### Improvement in Appliance Design

The committees in the American Gas Association are working continuously on improvements in appliances, improvements in design and contrsuction.

The greatest assistance we, as operators, can render to the manufacturers of these appliances is to

co-operate with them in their efforts to reduce styles and to develop quantity production. We can very well afford to do this because it will help us eventually to increase our business.

In developing gas appliances we should give all the attention possible to the needs of the industry and bear in mind always that appliances using competitive fuels are constantly being improved. Such appliances have portability, are flexible in control, and are adaptable to many uses. It is for us to see that our appliances are so designed and constructed as to make possible the use of gas for fuel by reason of superior operation, economy and convenience.

### House Heating by Gas

This subject, which has been in the background of the gas man's mind for many years, comes nearer to realization this year than ever before. New England, with its rigorous climate, can hardly expect to advance in this matter as rapidly as the districts farther south, where only intermittent heating is required. It is a fact, however, that as much is being done here, by way of experiment, as is being done anywhere else. Many companies in New England have one or more installations which are in operation and are under careful observation. The most ambitious experiment is being conducted at Pawtucket, where more than fifty homes are being heated by gas.

### Importance of Rates

The matter of rates offers the greatest problem in house heating development from the gas company's viewpoint.

The proper rate for this business, as well as for industrial development, while still a moot question, must some time recognize the element of demand. This is particularly true if this business comes in new peaks of demand or on our existing peaks. This means that the rate should include a consideration of the customers' use of the company's capacity.

It is doubtful if the limiting of demand can be worked out practically, except for very special cases, but demand capacity should be paid for by those who require it. It is necessary that there be improvement in methods and devices for measuring demand.

### As to Educational Undertakings

We have come to realize that to deal properly with our many problems, special attention must be given to training ourselves and our associates for their work. Accordingly, many companies, of which the Boston company is a notable example, have established study courses with outside instructors. In many cases local instruction by company representatives is undertaken.

Your Association has, with the Gas Sales Association and the New England Guild of Gas Managers, sponsored an Industrial Gas Class.

Your Educational Committee has continued the effort made in 1922 to establish a practical course at Massachusetts Institute of Technology for the training of men in the fundamentals of applying gas as a fuel in industrial processes. That success has been attained in securing the whole-hearted interest of the industry of this section is shown by the enrollment this year of 55 men, representing 35 companies, as compared with 31 men from 20 companies enrolled the first year. The class of 1923 numbered in its membership two practical industrial representatives of the Public Service Company of New Jersey and a native Chinese of Technology.

Further than this, there is ample evidence that the course provided has appealed to the industry at large. This is noticed in the interest and publicity received from the trade publications, the American Gas Association, equipment manufacturers, and gas companies from other sections of the country. Beyond all this and probably of greatest importance is the benefit that has come to the industry through the direct and practical interest on the part of the instructing staff of the Massachusetts Institute of Technology in gas as a fuel of imporance. This is decidedly a changed attitude, for previous to the institution of these summer courses no serious consideration whatsoever was given to gas as a heating unit.

For the immediate future this committee is planning to receive enrollments for these classes on practically the same conditions as formerly. There will continue to be first and second year groups, the first year being devoted largely to lectures and discussion, with the second year given over to the testing of appliances and other laboratory work. If sufficient demand is evidenced by a reasonable number of applicants it may be possible to provide more or less specialized courses for advanced students. The course this year will be held from June 16th to the 28th, and the program has already been decided upon. It will be changed only slightly from last year.

### The Uniform Classification of Accounts

The most interesting development is the program shown in securing the adoption of the Uniform Classification of Accounts.

"Effective January 1, 1924, the Public Utilities Commission of Connecticut adopted, without reservation, the 'Uniform Classification of Accounts for Gas Utilities,' as approved by the American Gas Association."

"The Public Utilities Commission of the State of Maine has adopted, effective January 1, 1924, the 'Uniform Classification of Accounts for Gas Utilities,' with certain changes, chiefly in respect to the handling of depreciation."

At the present time, 15 states have adopted this clasisfication. It is hoped that ultimately all states will adopt this classification.

### American Gas Association Relations

Your directors have given much thought to making our affiliation with the A. G. A. more mutually beneficial.

The annual meeting of the officers of sectional associations is of great value in promoting co-operative and co-ordinated effort.

(Continued on page 168-

# The Gas Company as a Merchandizer*

## The possibilities that are offered, the deficiencies because of lacks of effort and the need of a standard of comparison

*John J. Quinn*

Vice-President Citizens Gas Light Company, Quincy, Mass.

THE gas companies of the United States should be regarded today as leading specialty merchandisers, particularly in the field of home comfort and labor saving devices. Even the great engineering accomplishments of this industry should not overshadow this marketing ability for which we should be noted. Both achievements should be identifying marks of the porgressive policy under which this industry is living and growing.

Every requisite for the occupation of such a high and enviable position in the sphere of commerce is to be found available to practically every such utility organization. Time has apparently shown the wisdom of appliance merchandising by the gas companies of our country so that any discussion from this angle seems superfluous. If it is true, as will be shown, that there is available to each gas company all the basic necessities for leadership as the premier salesman in this broad field, then the obvious need is for a determination of why we are not so regarded by others and why we confess to ourselves that this ideal accomplishment is a vision and not a reality.

### Concrete Merchandising Assistance Afforded

Five years ago, very little, if any, concrete merchandising help was to be had from either of the great national sources from which today any gas company can draw without reservation. Consider these effective agencies and their contribution to the assured success that will be ours if we but have the will to do and make the persevering effort that will assure more sales and greater prestige.

### National Magazine Advertising

First of all you find an interest in quality gas merchandising that has been largely developed through the national magazine advertising now being carried by several manufacturers. Following this up, many appliance manufacturing concerns are doing district newspaper advertising, thus assuring a tying-in with the messages appearing in well-known national publications. This ground work or foundation is being laid without expense to the gas companies. It is something having such far reaching possibilities that it should be seriously considered and backed up by the active co-operation of all gas companies.

In very recent years the extensive use of simple, effective direct-by-mail campaign material, coupled with material for the convenient forming of local newspaper follow-up advertising, is a merchandising help provided by the manufacturers, to the smallest gas company and the largest alike. Where this material has been used it has proven its great value by showing direct and invariably satisfactory results.

To complete this assistance that is available on a national scale from appliance manufacturers, there will be found all the convenient accessories such as display cards, demonstration models and high grade descriptive literature. In many instances, direct sales assistance in each local territory will be provided, both for actual selling work and the training of local company salesmen.

### Aid Given by American Gas Association

The second national merchandising service that supplies further needed assistance to the gas company merchant is the American Gas Association. Here again the help of professional merchandising authorities is engaged in assuring the correct technical procedure and physical makeup of the various forms of assistance coming to all gas companies through this representative association.

### Lack of Effort Retarding Progress

A survey of the New England companies leads to one real outstanding reason in which is probably summed up all the most common and frequently given alibis for inactivity or mediocre activity. The conclusion is simple, plain, unmistakable. It is a decided lack of effort; an absence of enthusiasm; some misdirected effort, which is generally a result of these two former troubles; finally sales advertising or publicity that is presented from the wrong angle. In the last analysis, however, it is not the mistakes that we make that in general are holding back our progress, but simply a lack of effort, a habit of letting someone else do it, of listening to this someone tell of his accomplishments and effort, then very complacently forgetting all about it, so that the trials of working out the accomplishment will not interfere with our otherwise tranquil existence.

### Many Causes Underlying Lack of Effort

This lack of effort has many ramifications. Under this classification you will find the company that has not an adequate pay envelope incentive for its sales force. This is of first importance, for it is by the

(Continued on page 175)

*Abstract from an address delivered at the annual Meeting of the New England Association of Gas Engineers, Boston, Mass., February 13 and 14, 1924.

# GAS MERCHANDISING

*Domestic – Industrial*

# Lesson No. 8

## The centigrade scale

### Other Temperature Scales

As has been mentioned, the Fahrenheit scale was the first temperature scale devised. It is clear that it is not as simple as it might be, and furthermore, that it was based on certain assumptions that were afterwards proven to be inaccurate. The inventor thought that the zero point on the Fahrenheit scale was the lowest temperature procurable, which was true at the time, but is no longer true.

Napoleon Bonaparte is known for his military gifts, as one of the greatest generals of all times. He, however, also had a faculty for accomplishing big things in peaceful pursuits as well. The metric system was devised under his direction. The metric system is a complete system of measurement which is used by scientists all over the world. It is the legal system in France and other European countries The metric system is based on the use of multiples and fractions of ten. Thus, ten centimeters are equal to one decimeter, ten decimeters to one meter, etc.

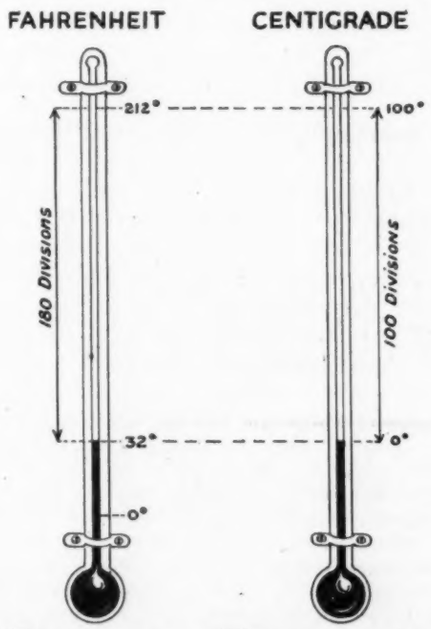
### The Centigrade Scale

Accordingly, another investigator saw the need of simplifying the temperature scale and applied the general principle of the metric system in affecting his simplification. He noted the position of the mercury column in the glass stem of the thermometer corresponding to the melting point of ice by immersing the bulb of the thermometer in a mixture of cracked ice and water. This point he called zero. He then fixed the boiling point of water on the temperature scale as 100. The distance between these tw o points was then divided into one hundred parts. Each of these parts was then called a degree Centigrade. The thermometer stem below zero and above 100 was then divided into degrees, the divisor being one degree Centigrade. This is the Centigrade or Celsius scale. It is employed largely in scientific work, but the English-speaking countries use the Fahrenheit scale in all common work.

There is still another temperature scale which is not of any particular importance. It is called the Reaumur scale. The melting point of ice is fixed at zero and the boiling point of water at 80, the distance between the two being divided into degrees Reaumur, eighty equal parts.

### Fixed Temperatures

It will be noticed that while these three systems are different in the units used in measuring temperature, they are based on the same fundamental limiting temperatures, the melting point of pure ice and the boiling point of pure water. They are hence all derived from observation of natural phenomena. Other materials have constant melting points as well as ice and in checking up the accuracy of any thermometer, particularly at points far above the boiling




COMPARISON OF TEMPERATURE SCALE

point of water, the melting points of these substances—metals—are used in the test. The United States Bureau of Standards has issued a table of melting points or solidification of molten metals which are fixed standards and which may be used to determine the accuracy of thermometers that read high temperatures.

The table of melting and solidification points is given below:

| Temperature degrees C | Temperature degrees F | Determined by the point at which |
|---|---|---|
| 232 | 449 | Liquid tin solidifies. |
| 327 | 621 | Liquid lead solidifies. |
| 419.4 | 787 | Liquid zinc solidifies. |
| 444.7 | 832.5 | Liquid sulphur boils. |
| 630.5 | 1167 | Liq. antimony solidifies. |
| 658 | 1216 | Liquid aluminum, 97.7% pure, solidifies. |
| 1064 | 1947 | Solid gold melts. |
| 1084 | 1983 | Liquid copper solidifies. |
| 1435 | 2615 | Solid nickel melts. |
| 1546 | 2815 | Solid palladium melts. |
| 1753 | 3187 | Solid platinum melts. |

(Note—The melting point is not the same as the solidification point. The first refers to that temperature at which a substance melts, fuses, changes from a solid to a liquid. The solidification point, however, is the temperature at which the molten mass becomes a solid again. For various reasons these two phenomena, melting and solidification, do not always take place at the identical temperature.)

## A GREATER NEW ENGLAND GAS ASSOCIATION

(Continued from page 165)

The representative from the American Gas Association will advise you what its committees are doing.

### The Advisability of a New England Gas Association

As your board has handled the various questions brought before it, the members have been brought to realize that some re-organization of our organization must be undertaken.

We believe a general study of our problem would suggest, as a remedy, a consolidation of some of our existing organizations and a development of sectional activities within this organization.

For instance, let us consider bringing together into one organization the Gas Sales Association, the Gas Industrial Class and the New England Association of Gas Engineers, to be known as the New England Gas Association. The various activities now handled by these organizations could continue as they are and as sections of this new association. The activities which now are barely covered, such as accounting and manufacturing, would then have adequate representation.

Such an arrangement could doubtless be worked out to the satisfaction of all concerned and would certainly help the development of the gas industry in New England. More effective use could be made of the sectional efforts in the American Gas Association.

The segregation of the large association into sections was looked upon with much misgiving at first. It is now recognized as being the only workable plan. One great difficulty before the A. G. A. is to meet the problems of the small company. Our organization, representing to a considerable degree the smaller companies, would have an immediate advantage.

Are we ready to work this out? That there is sentiment in favor of doing something has been brought to our attention several times. It is well to give thought to the matter so that it may be intelligently handled when the time comes.

Summing up the events of the past year, I believe the present state of the industry requires that each of us shall concentrate our attention a little more closely than ever before on the possibilities at hand. No uneasiness need be felt as to the future, but rather, with calm confidence and well-informed minds, we may prepare for the realization of the full opportunity contained in our wonderful industry.

## A NOVEL WINDOW DISPLAY

The above photograph shows how in the salesrooms of the Portland Gas & Coke Company, in Portland, Oregon, they demonstrate the modern cooking appliances used by hotels and restaurants. The place is exquisitely clean, all in light shades, and the cut-out figures represent the famous Pacific

Coast chef, Henry Thiele, who each year gives cooking demonstrations to the elite assembled in the salesrooms of the gas company, while the taller gentleman represents a French chef who assisted Mr. Thiele.

In order to attract hotel men, restaurant keepers and bakery men to this exhibit it is written up in the form of "readers" in the various hotel publications published on the Pacific Coast.

## UTILITY BONDS ENJOY HIGH STANDING

In a recent graph charting the course of the bond market, the New York Tribune shows that of 10 industrials, 5 utilties, 10 high grade rails and 5 second grade rails, the utilities in January, 1924, topped the list. Second in line were the industrials, and the rails followed in third and fourth position.

Forecasts for the year 1924 made by prominent statisticians all agree that this year will be one marked for the growth and expansion of the utility industry. In the New York Tribune graph the public utility bonds jumped ahead of the industrials in July, 1923, and they have constantly maintained their lead ever since.

# As The Journal Views It

## INDUSTRIAL BUSINESS FOR THE SMALL GAS COMPANY

As far as the large companies are concerned, it is now pretty clearly indicated that large returns are obtainable from the industrial end of the gas business. There are many industries which are located in large cities which can, and will, use gas as a fuel under the proper conditions. All of the large companies realize this situation and have made their plans to go after this business and secure as much of it as possible.

The small gas company may think that it has been neglected in this respect, or it may feel that there is nothing much in the industrial field for it to go after. Recently, however, industrial gas engineers of the large companies have been devoting some time to discuss the possibilities that are presented by industrial gas to the small gas companies, and to suggest ways and means by which this business can be secured by them.

It is unquestionably true that the small gas company can secure a certain and not unappreciable amount of business by developing the industrial field in its territory. Of course this field cannot be as large or as diversified as that in the larger towns, and it cannot be expected that the small gas company can maintain a special industrial organization to look after this business. In fact, it does not have to do so, and could not really do so economically, if it wanted to.

It is to the credit of the gas industry, as a whole, that the larger gas companies have in certain instances offered their services to the smaller companies in their efforts to obtain industrial business. Then, again, the American Gas Association has an industrial expert that can be called upon to aid in solving problems involved in the application of gas as an industrial fuel. Furthermore, the large appliance companies that have gone to considerable expense in experimenting and developing industrial appliances have also evinced a desire to assist the small gas company in every way possible to develop the industrial end of its busienss.

All this seems to indicate that there should be no difficulty in the small gas company getting some industrial business, if it really wants to do so. And there is really no reason why it should not want this business, because it is good business for it to have, and profitable to a much greater degree than ordinary domestic business.

It has been pointed out that the small gas company need not fear that it has no field for industrial business, because almost every town of any size has bakeries, restaurants, confectionery and candy-making establishments, and perhaps one or two plants that manufacture machine parts or metal products, in which a fuel is used, either in the treatment of these products, or in their manufacture.

These are good prospects and the small gas company which will go to the trouble of investigating and surveying its territory to determine the possibilities for industrial business will be surprised to find that there are many prospects for industrial gas in its field and that a considerable increase in gas sales can be obtained by going after this business.

It is up to the small gas company to take the first step, that is, to make the survey. There should be no hesitancy in doing this, because if there is any difficulty in securing the busiess, aid can be obtained from those who understand how gas should be used for industrial operations, and if every small gas company would make this effort the increase in the gas business throughout the country would be enormous, and the general result would be to the advantage of the entire industry.

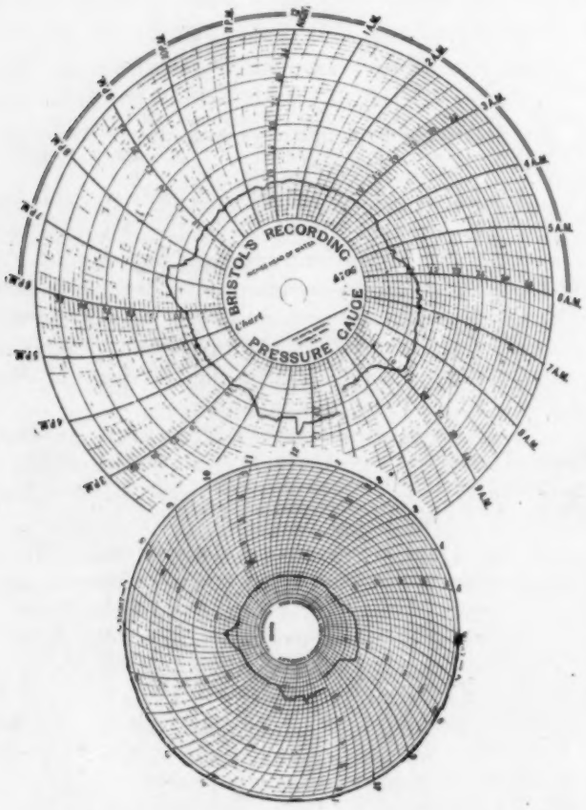
Let the small gas companies bear in mind the motto of our industry, **"If it is done with heat, you can do it better with gas."**

# GAS WRINKLES

## Remote Pressure Control for District Regulators

*F. E. Jinnett, Whittier, California*

This is a device for varying the pressure on the low pressure side of a regulator by means of changing the pressure on the inlet side and naturally it can be employed only in districts where the low pressure is fed by trunk lines or feeder mains which are in turn fed by a high pressure transmission line where the pressure is always higher than what is needed, as is the case in many small towns situated along the route of the high pressure natural gas transmission mains.

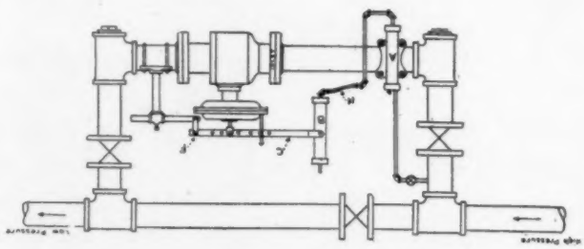



By raising the pressure in the trunk lines at the station the mercury in chamber A is forced through the piping P and flexible hose "H" to the chamber "B," increasing the weight on the end of the lever arm "C" and thus allowing the pressure on the low side to increase.

When the pressure on the inlet is reduced the mercury flows from "B" back into "A," thus reducing the weight and proportionately the pressure on the outlet side of the regulator.

The effect on the diaphragm of the weight of this mercury can be adjusted by changing the length of the lever arm "C," which has a movable fulcrum "F."

By referring to the two charts, shown on the following page, it will be noted that every change in pressure on the high pressure side of the regulator, which was, in this case, between 10 and 20 pounds, as shown on the smaller chart, was duplicated in the



low pressure, which was between 7 and 14 inches head of water.

This device has proved very useful in raising the pressure in low pressure sections during the peak loads from the central station instead of sending a man out to the district regulator to change the weights.

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### PORTABLE PRESSURE GAUGE TO BE USED INSTEAD OF GLASS WATER COLUMN

**F. E. Jinnett, Whittier, California**

This gauge was designed to take the place of glass "U" gauge, taking pressures on low pressure services and mains.

Note—The pressure element can be purchased separately from the manufacturers of recording gauges and it is not necessary to rob an expensive and useful instrument in order to make up this compact form of low pressure gauge.—Editor.

# Catechism of Central Station Gas Engineering in the United States

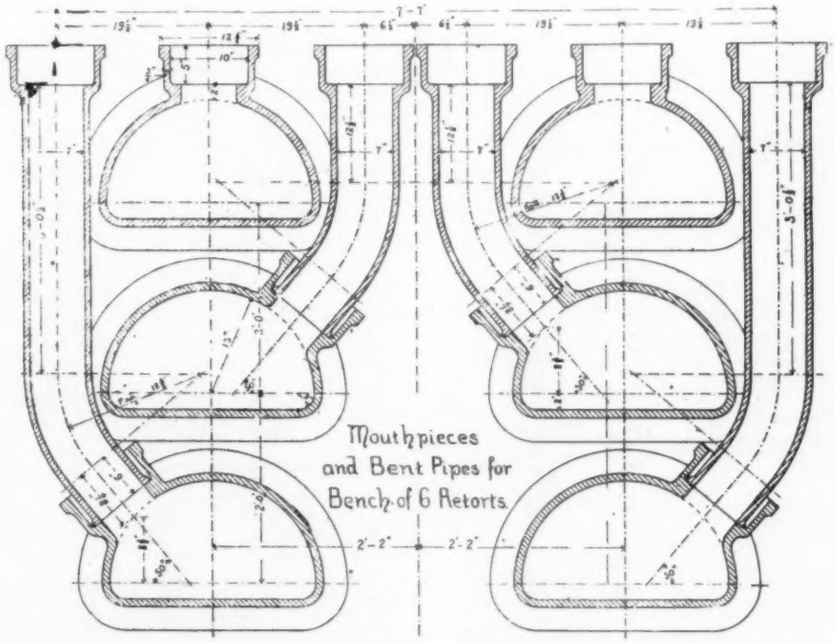
## Installment No. 8

(Continued from last week)

The part of each bent pipe which enters the bell has been made straight to make it easier to secure a good joint. The different bent pipes have been made of such lengths as to bring all the bells into which the standpipes enter, including those on the top retorts, on the same level, since this gives to the front of the bench a much neater appearance than it has when these bells are at different heights.

tion of a diaphragm main, and, while not drawn to show the exact construction of any main with which the Trustees are acquainted, it is drawn to illustrate as accurately as possible the principle upon which these mains operate.

Referring to the cut, A is the liquor overflow; B the tar overflow; C the diaphragm, which extends from end to end of each section; D a cleaning door, of which there may be several on each section; G the gas space in the main; H the space through which




If wrought iron standpipes are to be used, the diameter of the bells on the top mouthpieces and bent pipes can be reduced a little, if desired, and for the sake of simplifying the construction and reducing the weight of the mouthpieces some engineers make them without bells, providing instead seats to which the flanged ends of the bent pipes, or of short flanged bells for the top retorts, can be bolted.

### Description of a Hydraulic Main

38. Draw a cross section of a hydraulic main showing one dip pipe, the level of the liquid in the mains, and the overflow, if it is on the side of the main. Describe the main, and its action and care.

Ans. The accompanying cut will illustrate the principle upon which a hydraulic main of modern construction is operated. It represents a cross section of a diaphragm main, and, while not drawn to show the exact construction of any main with which the Trustees are acquainted, it is drawn to illustrate as accurately as possible the principle upon which these mains operate.

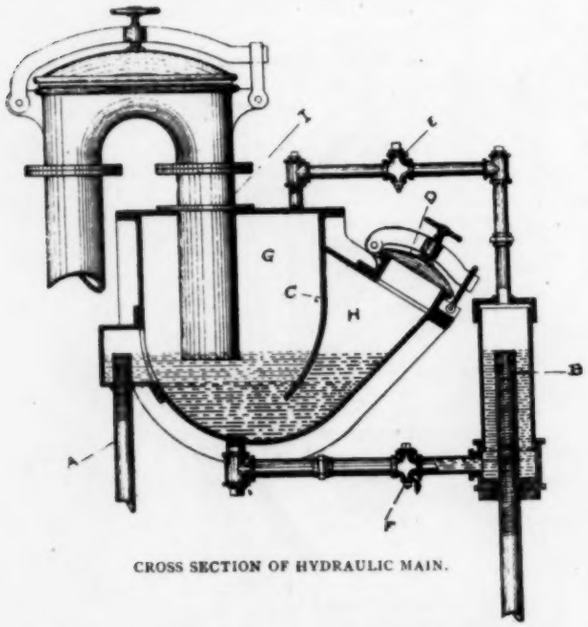
the main is cleaned, as described below, and F and E are ordinary cocks.

### Purpose of Construction

The purpose of this construction is to enable the operator to draw the tar off from the bottom of the main, the liquor being drawn from above the surface of the tar; and to provide that the gas entering the main from the dip pipe I bubbles through the liquor, and does not come in contact with tar. The heavier shading shows the tar in the main; the lighter shading, the liquor.

It is desirable to keep the tar so low in the main that the gas from the dip pipe will not come in contact with it. The top of the liquor pipe A must be

on the level at which it is desired to keep the surface of the liquor, and will be as much above the bottom of the dip pipe as it is desired that the dip pipe dip into the liquor. Therefore, in arranging the overflows for tar and liquor, it is first important to screw up the pipe A until its upper end is at the point at which it is desired to maintain the surface of the liquor. If it is desired to carry 1 inch seal, the upper end A will be 1 inch above the lower end of the dip pipe. The tar outlet B is then screwed down until its upper end is somewhat below the upper end of the liquor overflow A. The lower the tar overflow is set, the greater will be the distance between the bottom of the dip pipe and the tar in the hydraulic main. The limit to which the tar overflow can be lowered is determined by the differences in the gravity of the liquor and the tar, and this will vary with the different coals, different temperatures of retorts, and somewhat with the temperature conditions surrounding the main. It is not considered important that the tar should be more than 4 inches or 5 inches below the end of the dip pipe. This condition can be secured by setting the tar overflow from 1 inch to 1½ inches lower than the liquor overflow. As long as liquor continues to flow out of the overflow A, the tar overflow B is not too low.



CROSS SECTION OF HYDRAULIC MAIN.

### Adjustment of Tar Overflow

It will be readily seen that the tar overflow B can be lowered to a point at which all of the liquor and tar from the main will flow through it, leaving the liquor overflow above the level of the liquor in the main, and reducing or entirely removing the seal of the dip pipe.

It may happen that there will be an accumulation of very heavy tar or pitch at the bottom of the main that will be so sluggish in its flow that the tar will cease to overflow through its provided outlet B, and all the tar and liquor will flow out through A. When this occurs, or when, for any other reason, it is desirable to clean the main, the cleaning doors D are opened, and scrapers used to draw the tar and pitch up the incline through H, and through the doors D. This can be done while the main is in operation, as the diaphragm C, dipping down into the tar in the main, prevents the gas from escaping, even when the door D is open.

When the main is used, the cocks E and F should be open.

### Hydraulic Main for Bench of Six Retorts

39. Give a description, illustrated with sketches, of one length of hydraulic main for benches of six retorts, including the dip pipes, overflow or overflows, arrangements for cleaning out heavy tar or pitch, and the considerations that determine the area of the surface of liquor in the main outside of the dip pipes.

Ans. The hydraulic main for a bench of coal gas retorts should be made of wrought iron. The cross section shown on the accompanying cut is one of several that are in use. The length of a section would be just a little shorter than the distance between centers of the division walls on each side of the bench, and its width would be such as to give the necessary area of surface of liquor outside the dip pipes, the manner in which this area is determined being explained later.

Circular holes are cut at the proper places in the top plate for the insertion of the dip pipes. These pipes must all be made exactly the same length from bottom of flange to lower end of pipe so that these ends will all be the same distance below the top plate, and will therefore all be sealed to the same depth when the main is set level.

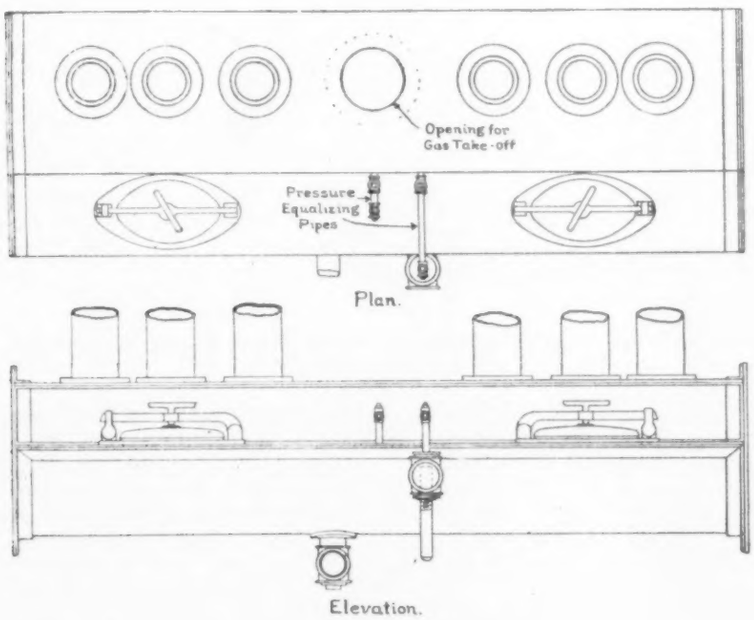
### Details of Apparatus

The plate A serves to seal the space between it and the back plate B from the body of the main and thus permits the opening at any time of the cleaning lids, of which there are at least two to each length of main, for the drawing out of heavy tar, which is too thick to run off through the tar pipe, without interfering in any way with the process of gas making. The same end may also be attained by making the body of the main U-shaped and attaching to it, on the back, cleaning pockets, the openings in the side of the main being made with their top edges below the water line to seal off the pockets from the main so that cleaning can be done at any time without interfering with gas making. The side of the main or of the pocket, as the case may be, along which the tar is to be drawn, should be given a gradual slope in order to make it easier to draw out the heavy tar.

The overflows are arranged in various ways. Some-

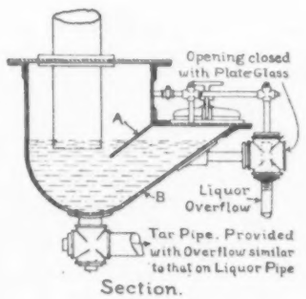
times a single overflow, opening from the bottom of the main, is used to draw off both the tar and the ammoniacal liquor deposited in the main; in other instances only the liquor is drawn off by an overflow, the tar being run off at intervals through a drain pipe, while still another arrangement is to have two separate overflows, one for the liquor and the other for the tar. This last is the best arrangement, the objection to the single overflow for both tar and liquor being that it does not maintain a uniform seal on the dip pipes, while running off the tar at intervals entails a certain amount of labor that is avoided by the double overflow, so long as the tar is kept thin enough to run out of itself. Such an arrangement is shown on the cut. In every case the overflows should be made adjustable as to height so that the seal can be varied to suit different requirements. The adjustability is usually obtained by the use of nipples with long threads which can be screwed up or down inside of a suitable fitting. For the liquor overflow a 1½-inch pipe screwing into a bushing set in one outlet of a 3-inch cross may be used. Special weir valves are also made for this purpose. When the overflow opens out of the main below the water level, as is often the case, a connection must be made between the gas space in the main and the space above the liquid in the portion of the overflow outside of the main, so that the pressure on the surface of the liquid in the main and that on the liquid in the overflow shall always be the same. Otherwise the main might be partially emptied of its liquid contents if a heavy pressure was thrown upon it by the stoppage of the exhauster or in any other way.

Each section of the hydraulic main must also be provided with a gas take-off of suitable size which connects it with the foul main.




HYDRAULIC MAIN

FOR BENCH OF SIX RETORTS.




HYDRAULIC MAIN.

### Area of Surface of Liquor Outside of Dip Pipes

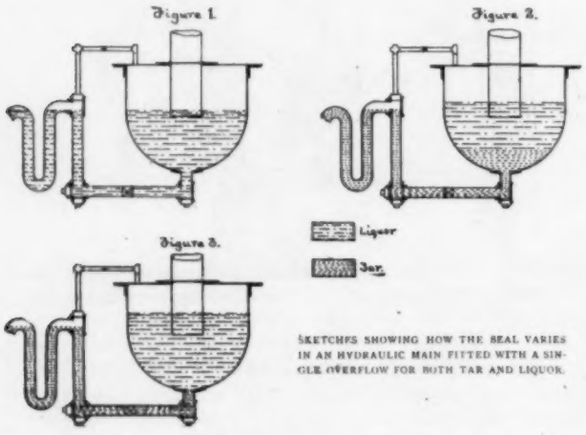
The area of surface of the liquor outside of the dip pipes is determined from the following considerations: It is necessary that the dip pipes should remain sealed when the retorts are open and the surface of the liquor in the dip pipes is subjected to atmospheric pressure, even when the pressure in the main is at the highest point it is likely to attain under the conditions existing in any given works. The unsealing of the dip pipes, when the water is at the proper level, can only be brought about by the forcing up into them of a volume of water equal to the area of the liquor in the main outside of the pipes multiplied by the distance from the normal surface of the liquor to the lower edges of the dip pipes, that is, of a volume equal to the surface area of the liquor multiplied by the normal depth of seal. If the depth of seal is taken as 1 inch, and the greatest pressure that is likely to be thrown on the main as 10 inches, it will be necessary to have the area in the main outside of the dip pipes a little more than 10 times as large as the area inside of the pipes, since if it were less than this all the liquor outside the pipes above their lower edges would be forced up into them, and they would thus be unsealed, before the height of liquor in them was sufficient to balance the pressure in the main. The rule may be stated in general terms as being that the area outside the dip pipes must always be at least as many times greater than the area inside the pipes as the quotient obtained by dividing the greatest pressure likely to exist in the main by the normal depth of seal that it is the intention to carry. When the main is so designed there is no danger of gas passing back out of the dip pipes as long as the water is kept at the proper height in the main.

### Simultaneous Removal of Tar and Liquor from Hydarulic Main

40. Is it possible to have a single automatic overflow to remove both tar and liquor from the hydraulic main and at the same time maintain a liquor seal of constant depth on the dip pipes? Illustrate the reasoning by which you arrive at your answer by a sketch showing a cross section of the main and of such an overflow.

Ans. Owing to the difference between the specific gravities of tar and ammoniacal liquor it is not possible to have a single automatic overflow for the removal of both tar and liquor from the hydraulic main and at the same time maintain a seal of constant depth on the dip pipes. Such an overflow must connect to the bottom of the main, since otherwise some tar will be allowed to stay in the main indefinitely and gradually stiffen up until it can only be removed by scrapers. The accompanying cut shows cross sections of a hydraulic main with a single overflow opening out of the bottom and serves to illustrate the description of its action which follows:

The main being filled with liquor at the start the conditions are as shown in figure No. 1, the liquor in the two legs of the syphon formed by the main and overflow standing at the same level, and the dip pipes being under the proper seal. But when the main is




SKETCHES SHOWING HOW THE SEAL VARIES IN AN HYDRAULIC MAIN FITTED WITH A SINGLE OVERFLOW FOR BOTH TAR AND LIQUOR.

in operation tar soon accumulates and settles to the bottom, and then nothing but tar can enter the overflow and pass over to its outside leg, as shown on figure No. 2. In this outside leg there is then a column of tar only, while the balancing column in the other leg is composed partly of tar and partly of liquor. The liquor being lighter than the tar, this column of tar and liquor cannot support a column of tar of equal height, and before the tar in the outside leg of the syphon can rise to the level of the overflow and run off, the liquor in the main must rise above this level by an amount which depends upon the length of the outside leg and the proportion of the height of the inside leg which is occupied by the liquor. The seal on the dip pipes will thus be made greater than it should be, as shown on figure No. 2.

Since as long as there is any tar in the main there will be nothing but tar in the outer leg of the overflok and nothing but tar will run off from the main, all the liquor that is formed accumulates, until finally as the tar runs off, the main contains, as shown in figure No. 3, nothing but liquor standing at a level which is sufficiently high to more than balance the tar in the outer leg and drive it out of the overflow. When this happens there will be liquor on both sides of the syphon, and therefore the heights of the two columns will equalize themselves by the rapid flowing out of the liquor from the main until the level has been brought back to the normal water line, at which it will stand until enough tar accumulates to again cut off the liquor from the overflow and fill the outer leg, causing a repetition of the sequence of events previously described.

It is therefore evident that with such an arrangement of overflow, the water line in the main is continually varying and the depth of the seal on the dip pipes is anything but constant. To secure a seal of constant depth and at the same time remove both tar and liquor automatically it is necessary to adopt an arrangement of double overflows.

### Hydraulic Main for Bench Retort Shown in Question No. 37

41. Give a drawing of one length of hydraulic main to be used with the bench of retorts illustrated in the answer to question No. 37. This drawing should show all the dimensions of the main, and also the arrangements for running off the tar and ammoniacal liquor, and for cleaning the main, while in operation, from any heavy tar that may accumulate in it. State in writing the reasons that determine the choice of the dimensions that you give.

Ans. The accompanying cuts show a plan, section and part elevation of a length of hydraulic main made for the bench of retorts illustrated in the answer to question No. 37, and also details of the liquor and tar overflows. The body of the main is made of ¼ in. steel, and the cleaning pockets of cast iron, these pockets being bolted, or riveted, to the body at the proper places. They are made, as shown, with their inner upper edges sealed below the liquor in the main so that the covers can be taken off at any time and the main cleaned without interfering with the operation of the retorts. The bottoms of the pockets come up on a gentle slope from the lowest point of the main, and there is nothing to interfere with getting the heavy tar out very easily when it is necessary. The covers of the pockets are fastened down by swinging bolts, and can be taken off and put back very quickly and readily.

The liquor and tar overflows are made entirely of ordinary pipe and fittings, except that it is well to have the stop-cock on the tar overflow made with the opening in the plug around and the full size of the pipe, which requirement is not fulfilled by the ordinary iron stop-cock. At the same time these overflows are adjustable over a height of 3 in. or 4 in.

(Ninth Installment Next Week)

## THE GAS CO. AS A MERCHANDISER

(Continued from page 166)

amount of material remuneration that interest is first held. It takes a genuine effort to work out a fair and adequate payment plan for the people who must directly present and handle the sale.

Many sales forces are satisfactorily maintained under widely differing plans, with commissions that vary as does the wind. Each company must work out the plan best suited to local conditions. But remember, some fair and adequate plan must be adopted before you can be successful. The matter will not become satisfactory unless initiative is displayed and action taken.

Take the company without any sales force. The manager will give you a supposed-to-be good and logical statement as to why things in this connection are thus drifting. It sounds convincing, but when you look back a few years or so you will probably find, if the company is of medium size, that there was trouble with a then existing force and when the war came and went, it took with it the troublesome, improperly managed sales force. Ever since there have been so many good reasons for not attempting a resurrection of the bothersome body, that the needed effort has simply not been made.

### What Concentrated Effort Can Do

Consider the radiant type heater for one moment. The companies that started aggressive selling of this appliance about three years ago have today surprised themselves with the accomplishment. Here is an auxiliary heating appliance, that sells on a near price par with the constantly used range. Does it sell in quantity as a result of effort? Let me cite one concrete example, not by any means a spectacular case, but one in which the correct prescription was used. With no effort made for the year 1918—sale of radiant heaters, 3. The next year with the initial effort, 95; next year, 98; then 1921, sales 130; in 1922, with efforts plus a coal shortage, sales 260, and in 1923, with effort, but no coal shortage, sales 226.

No plan, however good, is better than the human element back of it. If there is an absence of human understanding, a lack of genuine feeling; a vacancy where there should be unlimited ability to visualize, then you cannot expect merchandising success.

Warmth, sympathetic understanding and deep abiding interest in the proposition offered, as well as in the men and women who must directly present the plan, are axioms in this consideration. The gas industry must inspire its men and women, from the highest official to the least of its workers. Then the success atmosphere that is admittedly lacking in many organizations will be promptly generated and forever maintained. This industry should be recognized as a leader in every branch of its most diversified calling.

### Danger of Ill-Conceived Publicity

Just a word about improperly conceived publicity or badly executed advertising, as a stumbling block to our merchandising progress. Besides wasting money in this way, immeasurable harm is done in a much more far reaching and important way. Remember at the outset in our public utterances, the world is only interested in our accomplishments or offers, in so far as these directly benefit and concern the world as an individual. So often the proposition is staged from our viewpoint and not from the viewpoint of the person we hope to interest. It is easy to recall the plea that has often been made in an attempt to induce so-called off-season purchasing. "Our men are without work to do; won't the charitably inclined place their orders now. We must have the business or lay off the men." That is not such a great exaggeration as it at first might seem. You can get the reaction; the decidedly bad inference that gas appliances are only seasonably used; that gas is considered an auxiliary fuel.

### To Get Business, Make Real Inducement

Further and more far reaching from the permanent psychological effect, by such a plea a question of the financial stability of this industry is unconsciously raised in the public mind. It is not big or substantial enough to carry on through dull months as through active and prosperous times, with personnel and service unimpaired; ready as we claim to be, for any emergency at any time. Such an inference is untrue, but if the public think the facts to be overdrawn they must conclude that we are not truthful advertisers. The most liberal offer finds few takers when the statement is thus presented. If you want the business at an off time of the year, make a real inducement and tell your public that it is to their decided financial benefit to buy then and there. The results will then be worth while from every viewpoint. Remember, when it comes to the printed word, the cost is the same be the message correct or incorrect. The results that will be obtained are directly proportionate to the correctness of both message and method.

### A Plea for a Standard of Comparison of Merchandising Effort

Now for a recommendation that it is felt by some in this association will assist in hastening our arrival at the merchandising goal that it seems plain this industry should reach.

In every branch of the gas business except in the appliance sales department there are definite records of performance: standards of comparison. Because of the many intangible factors to be considered nothing has been done to establish scientific sales standards.

Every sales attempt has been directed solely toward bettering the record of the previous year. Whether such records stand for worthwhile accomplishments or not is unknown in anything like a definite way. Bogies, where used, are set on this basis of bettering last year's record. Whatever little incentive that may be generated by comparison of one organization with another, is measured by this past performance rather than by any accurately estimated

present or future possibilities. It is not known how many appliances of a given kind should be considered as a standard for sales, in companies similarly situated as to population served, meters in use, geographical location and the like.

### A Common Basis of Comparison Would Be Eminently Advantageous

The feeling exists that there is some ground upon which to build a fair and adequate standard that would eventually prove a decided help in the proper conduct of merchandising departments. For example, it would be an advantage to company officials to have some recognized uniform basis upon which it could be determined what the sale of a given appliance should yearly amount to, as perhaps some definite percentage of sales, to meters in use. It is easy enough at present to know what this percentage has been for any given period, but the figure does not indicate good or uniform merchandising.

### Factor Influencing Determination of Uniform Standards

The life of a given appliance, both from the standpoint of actual deterioration as well as from obsoleteness, could be agreed upon. Improved construction and facilities should play their part in determining when appliances should be replaced. The rate of growth of companies in similar localities would no doubt provide a factor. The yearly increase in the number of given appliances used in various localities would serve as another figure in the equation. This latter information might not be so readily obtained, although it does not seem to be in the realm of the impossible. The exact factors to be considered and the business engineering procedure to be followed are not within the scope of this discussion. The thought seemed to have sufficient merit, however, to warrant its inclusion as a progressive suggestion, worthy of some adequate investigation.

### Gas Companies Should Study the Merchandising Angle of the Business

If this industry has the potential possibilities of a great merchandiser, let the determination go forth to each company to do something definite this year toward gaining the prestige that our calling demands. Let each organization study the merchandising angle of this business. It will be found fascinating. Its productivity will not be negligible. The companies that become most proficient in merchandising are guaranteed to render the best possible all around service to all of their customers. This is a simple, unmistakable conclusion. Successful merchandising can only become a reality with an adequate backing of first quality service. Real service is essential in order to have appliances work properly. By good service you make friends and materially assist in making these friends good customers.

### Real Progressive Activity Necessary

Let a resolve be taken by all gas companies and especially by those who fearlessly admit to themselves their deficiency, that they will do something this year that will make their sales departments more worthy of their name and function. Make an analysis of territories. Let every company whole-heartedly adopt some of the direct-by-mail and auxiliary newspaper campaigns that will cheerfully be provided by several prominent manufacturers.

Keep a live demonstration of all gas appliances on your sales floor. Put the toaster, waffle irons, laundry irons, ranges, water heaters, radiant heaters, laundry equipment and everything else to work, out in public view where the people can see and be shown.

### Home Economics Work

Go into Home Economics work wherever possible. Take the lead in any co-operative advertising possibilities that arise between various co-related interests. Do all these things, keeping in mind constantly that merchandising means selling at a profit. Sales departments, while generally operated with this end in mind, do not always hold to this principle. As an official of one of the largest gas companies recently said, "You can't merchandise at a profit in this business, on small wares."

The real worthwhile home comfort appliances must be sold in quantity to take care of the sizable sales department overhead that our field and position demands. Remember, action, or the lack of it, is the thing that will decide our future position in the merchandising world. One good sale will produce another. Let's go, and keep going!

## GAS FROM NON-COKING SOFT COAL

According to the invention the distillation of non-coking bituminous materials is effected within rectangular chambers, in which slats extend lengthwise along the side walls, from front to rear, leaving between the walls and the adjacent sets of slats the desired space for the charge to descend in more or less thin layers. The fresh material is continuously fed from above through the openings between the slats and the heated walls of the distillation chambers, while the residue is drawn off from below in a similar continuous manner. The state of continuity required for such uninterrupted operation is obtained by the fact that the openings between the slats are raked in longitudinal direction with the help of poker bars, from the front. Preferably this is effected by means of continuously moving scrapers engaging the openings. By this means, on the one hand, the continuous downward movement of the coal through the distillation chamber is secured, while on the other hand the passages for the gases into the interior of the chamber are kept free. Instead of using reciprocating scrapers, a similar effect may be produced by periodically moving or shaking the slat framing.

The shape of the chambers allows of a combination of a plurality of ovens, so as to form a battery, by simply setting the distillation chambers side by side, separated by the heating walls. This offers the possibility to obtain a large output on a limited area. —(British Patent No. 206,712)).

# Backrun Apparatus at the Worcester Gas Light Company*

## The results obtained in an exhaustive test

*Edward H. Bauer*

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During the time that the backrun apparatus was being made and after it was placed into operation we were receiving several kinds of coke as fuel, and due to the condition of our fuel storage yard we were forced to use mixtures of coke as they were received and unless there is uniform grade of fuel used we cannot safely state that the operation is at its best. Some of these fuels had a high and others a low fusing point ash. Some of the fuels were crushed and screened at the point of shipment, while others were run-of-oven and received only a small amount of screening at the plant.

### Uniformity of Fuel Important

Uniformity in the size of fuel also plays a big part in the generation of gas in the gas machine and at times we were forced to use very large fuel, for say one day, and the next day changed to a smaller grade of fuel, each requiring an adjustment of air and steam conditions in order to get maximum results.

It was, therefore, decided that in order to make the tests as near comparable as possible, we should use the same kind of fuel. At that time we were receiving fuel from the New England Coal and Coke Company in sufficient quantities to make a test of a week or ten days, using one grade of fuel, saving enough of this fuel for a test of a similar duration after the backrun was installed.

### The Backrun Test

On June 13 to 20, 1923, we made a test on the U.G.I. 11 ft. machine, before the backrun apparatus was installed and immediately after that the machine was changed over for the backrun apparatus, but due to the demand for gas we were forced to run two machines and not until November 1 were we able to furnish gas to the city with one machine. This is the reason for the large space of time elapsing between the two tests, as shown later on in this paper.

In collecting the figures for the two tests it was our intention of proving or disproving the results claimed for a backrun apparatus. For this reason we ran a seven-day test on a Standard 11 ft. Cone Top U. G. I. hydraulically operated machine before the backrun was installed, and later, after installation, repeated this test under the same operating conditions, as nearly as possible.

One serious handicap with which we had to contend was the fact that scales for weighing coke which we ordered for installation in our Monorail coke conveying system were delayed so long in arriving that we had to make the first test without them. This meant that we had no method of weighing all the coke that was charged to the generator. In the face of this we did what seemed to be the next best thing, i. e., to weigh as many buggies of coke as possible by dumping them on the floor and weighing the coke, a basket at a time, on a set of small platform scales which had been checked up. We did this on an average of five times a day, obtaining a total of 35 buggy weights, from which we took the average weight. We then multiplied this by the total number of buggies charged in order to arrive at the total coke used.

### Saving in Fuel

Our figures did not show the saving in fuel that we had expected, the saving amounting to about 3½ per cent. Some of this may be accounted for from the above mentioned different methods of weighing. Also, some fuel loss was due to the long periods of holding the fire over when we were forced to remain shut down by the holders being full. This was made necessary by the fact that our capacity for making was increased by nearly 16 per cent, so that our operating time had to be shortened to that extent. There are other reasons which appear in the figures which would have a tendency to prevent a maximum saving, such as the greatly increased pressure in the foul main due to increased capacity, and the slightly poorer quality of coke used. The coke used in both tests was New England Egg size and was screened, before entering the coke buggy, over a link-belt shaking screen. To get our coke samples for analysis, we had a covered receptable upon the charging floor, and a small amount from each buggy charged was put into this. After each day's run, the accumulated coke was crushed, quartered and ground for the laboratory and the analysis given is the average of the seven analyses obtained in this way.

### Details of Test

The clinker, ash and dust from the dust catcher was weighed a wheelbarrow at a time, on small platform scales and samples taken for the determination of combustible matter. The weights given may not be strictly accurate, due to the difficulty of getting samples with the same amount of moisture as the whole, as this material is all quenched with water upon being pulled from the generator.

Oil samples were taken from the supply tank before the start of each day's run. From each sample taken, 100 c. c. was placed in a bottle so that our composite sample contained 700 c. c. A specific gravity, sulphur determination, B. T. U., and distillation was made upon this sample.

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*Abstracted from a paper read before the annual meeting of the N. E. A. of Gas Engineers, Boston, Mass., February 13 and 14, 1924.

### The Temperature

The temperature for the bottom and top of the superheater were taken from the average as given by a Brown Duplex Recording Pyrometer with nichrome covered fire-ends. The inlet of the wash-box was obtained with a Bristol smoked chart recorder with a 12-inch fire-end inserted in the pipe just over the wash-box. The outlet to the wash-box was obtained with a Foxboro suspended pen recording thermometer, as was also the temperature at the inlet to the station meter. The meter used is a Connersville, 12-inch x 36-inch Rotary Displacement Meter.

The pressure given for the outlet to the wash-box is an average of the maximum for each run as taken from a Foxboro suspended pen recording pressure gauge. The outlet pressure to the exhauster is an average taken from a Bristol Recording Gauge. The pressure of the inlet to Station Meter and the Differential through the Station meter was taken from a Foxboro suspended two-pen recording pressure gauge.

### The Amount of Steam Used

A Bailey Flow Meter was used to measure the amount of steam used. This was placed at the outlet of the boiler room so that the steam passed includes the steam used at the machine, both generator and turbine, and also the steam used for the oil pump in pumping oil from the supply tank to the machine. During the first test it was necessary, upon two different occasions, to run one of the other machines, due to mechanical difficulties with the machine under test. Also, our steam jet ash conveyor was operated some during cleaning periods so that it was necessary to deduct steam used by these in order to get the amount used upon the one machine. During the second test there was no such interruption. The amounts of up and down steam and also the percentage of each were taken from the indicating gauges, on the U. G. I. machine.

### Blue Gas Sampling

To obtain blue gas samples, a small sampling holder was installed upon the charging floor. For the first test a pipe was run from the cross just before the carburettor so that both up-steam and down-steam gas could be obtained. A purging light, a small orifice, and a quick opening valve were put in this line, the quick opening valve being attached to the stack valve of the machine by a chain through overhead pulleys. This arrangement allowed the taking of composite blue gas samples. The same equipment was used in the second test with the addition of a line from the backrun pipe with a quick opening valve and also one other quick opening valve in the line from the cross. These last two valves were made to work opposite to each other, one being open and the other closed at all times, and were operated by the changing of the hot valve by a chain thrugh a suspended pulley. The original quick opening valve connected to the stack was still used to close the entire system during the blow.

A Junker's Wet Calorimeter was set up in a cabinet adjacent to the holder and daily B. T. U.'s taken of the composite samples obtained. Fairly consistent results were obtained, although room conditions were necessarily very poor for this kind of determination. Samples of this gas were, also, taken to the laboratory and analyzed with a Morehead Gas Analysis Apparatus.

### COMPARISON OF FIGURES OF TWO SEVEN DAY TESTS

| | June 13-20, '23 Without Backrun | Nov. 1-8, '23 With Backrun | | Change |
|---|---|---|---|---|
| **COKE** | | | | |
| Wt. used wet basis (lbs.) | 659,347 | 589,941 | — | 69,406 |
| Wt. used dry basis (lbs.) | 632,491 | 550,857 | — | 81,634 |
| Coke analysis wet basis Moisture | 4.07 | 6.63 | + | 2.57% |
| Vol. Matter | 2.49 | 1.59 | — | .90% |
| Fixed Carbon | 83.54 | 80.58 | — | 2.96% |
| Ash | 9.13 | 10.35 | + | 1.22% |
| Sulphur | .77 | .85 | + | .08% |
| B. T. U. per lb. of dry coke (Av. 7 tests) | 12,260 | 11,741 | — | 519 |
| Wt. Carbon used (lbs.) | 550,818 | 475,374 | — | 75,444 |
| Wt. Clinker and Ash—dry basis | 49,917 | 82,194 | + | 32,277 |
| Wt. Dust from dust catcher | 4,726 | 4,768 | + | 42 |
| Coke recovered in clinkers and re-charged | 11,166 | None | | |
| Carbon in clinker and ash | 8.3% | | | |
| Carbon in dust | 83.7% | 78.9% | — | 4.6% |
| Net weight of dry coke used | 621,325 | 550,857 | — | 70,468 |
| Net Coke per M cu. ft. gas made wet | 29.8 | 29.4 | — | .4 |
| Net Coke per M cu. ft. gas made dry | 28.5 | 27.5 | — | 1.0 |
| % gain in dry coke per M with backrun | | | + | 3.51% |
| **OIL** | | | | |
| Total gallons, used (Meter) | 63,982 | 57,853 | — | 6,129 |
| Total gallons, used (Tanks) | 64,099 | 57,842 | — | 6,257 |
| Specific Gravity (Comp. sample) | .8568 | .8600 | + | .0032 |
| Degrees A. P. I. (Comp. sample) | 33.4 | 32.8 | — | .6 |
| Distillation (Comp. sample) 1st drop | 441° F. | 411 F. | | |
| | | 411° F. | | |
| (See curve for details, of distillations) (400-500) | 23.0% | 18.5% | | |
| (500-600) | 53.5% | 55.5% | | |
| (600-700) | 16.5% | 18.0% | | |

| | | | | |
|---|---|---|---|---|
| B. T. U. per gal. of oil | 139,358 | 139,463 | + | 105 |
| Sulphur | 1.15% | 1.67% | + | .52% |
| Shipper | Standard | Standard | | |
| Oil per M cu. ft. gas made | 2.94 | 2.89 | — | .05 |
| % gain oil per M with backrun | | | | 1.7% |
| **TEMPERATURES** | | | | |
| Bottom Superheater (Deg. F.) | 1360 | 1370 | + | 10° F. |
| Top (Deg. F.) | 1430 | 1170 | — | 260 |
| Inlet Washbox (Deg. F.) | 1045 | 761 | — | 284 |
| Outlet Washbox (Deg. F.) | 188 | 180 | — | 8 |
| Inlet Meter (Deg. F.) | 86 | 89 | + | 3 |
| Air Generator under grates—Blast Av. (Cu. Ft.) | | | | |
| Max. | 15,941 | 17,280 | + | 1339 |
| Min. | 13.337 | 13,730 | + | 393 |
| Secondary Air Av. (Cu. Ft.) | 2,604 | 3,550 | + | 946 |
| **PRESSURES** | | | | |
| Outlet Washbox | 30" | 44" | + | 14" |
| Outlet Exhauster | 34.0 | 46.0 | + | 12" |
| Inlet Station Meter | 12.6 | 12.2 | — | .4" |
| Differential Station Meter | .8 | .9 | + | .1" |
| **STEAM** | | | | |
| Bailey Meters: End of test | 2,219 | 3,449 | | |
| Bailey Meters: Start of test | 0,516 | 2,160 | | |
| | (Dif. x 1000) | (Dif. x 1000) | | |
| Steam passed | 1,703,000 | 1,933,500 | — | 230,500 |
| Steam deducted for No. 4 Machine and Ash Conveyor | 87,575 | None | | |
| Total Steam used for No. 6 Machine | 1,615,000 | 1,933,500 | — | 318,500 |
| Steam per M cu. ft. gas made | 74.3 | 96.6 | — | 22.3 |
| (Steam does not include exhauster, holder drips or oil pumps for storage.) | | | | |
| Up steam used in lbs. per min.—Av. | 185 | 200 | + | 15 |
| Down steam used in lbs. per min.—Av. | 180 | 250 | + | 70 |
| Cycle used | 60 sec. up | 90 sec. up | | |
| | 80 sec. down | 80 sec. down | | |
| | 40 sec. up | 10 sec. up | | |
| Percentage steam up | 56.3% | 44.4% | | |
| Percentage steam down | 43.7% | 55.6% | | |
| **GAS** | | | | |
| Blue Gas Analysis (Comp. Samples) | Avg. 5 tests | Avg. 4 tests | | |
| $CO_2$ | 3.7% | 4.6% | + | .9 |
| Ill. | 0.0% | .2% | + | .2 |
| $O_2$ | 1.0% | .9% | — | .1 |
| CO | 41.2% | 38.1% | — | 3.1 |
| $CH_4$ | .3% | 1.3% | + | 1.0 |
| $H_2$ | 44.0% | 44.1% | + | .1 |
| $N_2$ | 9.8% | 10.8% | + | 1.0 |
| B. T. U. Calculated | 279.5% | 284.6% | + | 5.1 |
| B. T. U. Calorimeter | 293.0 | 290.2 | — | 2.8 |
| Specific Gravity calculated | .5943 | .5949 | + | .0006 |
| Finished Gas Analysis (Com. Samples) | Avg. 6 tests | | | |
| $O_2$ | .9% | 1.2% | + | .3 |
| Ill. | 8.6% | 8.4% | — | .4 |
| $CO_2$ | 3.9% | 4.7% | + | .8 |
| CO | 33.4% | 31.2% | — | 2.2 |
| CH | 10.7% | 11.7% | + | 1.0 |
| $H_2$ | 34.6% | 34.0% | — | .6 |
| $N_2$ | 7.9% | 8.8% | + | .9 |
| B. T. U. Calculated | 525.4 | 522.8 | — | 3.6 |
| B. T. U. Calorimeter Av. 7 Com. Samples | 536. | 539. | + | 3.0 |
| Specific Gravity Calculated | .6732 | .6867 | + | .0135 |
| Specific Gravity Determined | .6470 | | | |
| Total Sulphur | 14.88 | 5.90 | — | 8.98 |
| Total Gas Made (cu. ft.) | 21,745,000 | 20,007,588 | — | 1,737,422 |
| Hours running | 128.8 | 103.0 | — | 25.8 |
| Make per hour (running) | 168,827 | 194,151 | + | 26,324 |
| Make assumed (24 hours) | 4,051,000 | 4,659,624 | + | 608,624 |
| Clinkering time (hours) | 21.2 | 21.8 | — | .6 |
| Total non-operating time (hours) | 18.0 | 43.2 | + | 25.2 |
| Number of runs | 1,420 | 1,129 | — | 291 |
| Make per run | 15,032 | 17,721 | + | 2,419 |
| Make sq. ft. grate area per min. | 80.20 | 92.87 | + | 12.67 |
| Runs per running hour | 11.0 | 10.96 | — | .04 |
| Oil per M (gallons) | 2.94 | 2.89 | — | .05 |
| M B. T. U. per gal. oil in gas | 182.3 | 186.4 | + | 4.1 |
| B. T. U. oil per gal. | 101,400 | 103,700 | + | 2,300 |
| True oil officiency | 72.8% | 74.3% | + | 1.5% |

The finished gas, i. e., the purified, carburetted gas, was collected in the laboratory. A sample was continuously collected throughout the run in a sample holder and the B. T. U. and analysis of the composite samples taken daily with a Junker's Wet Calorimeter and a Morehead apparatus. The total sulphur tests were taken with the Standard Referee Sulphur apparatus.

The figures obtained by calculation of the data show a slightly decreased make for the week, but a considerable decreased operating time which gives a corresponding increase in make per unit time. The true oil efficiency is the B. T. U. obtained per gallon of oil divided by the actual B. T. U. per gallon as obtained with a Parr Peroxide Bomb Calorimeter and multiplied by 100. In determining the B. T. U. per gallon obtained, the cubic of oil gas per gallon of oil was assumed as 70.

### Conclusions

1. The capacity of a water gas machine is greatly increased by the installation of the backrun apparatus.
2. Although the rate of oil input to the machine is increased, no loss of oil efficiency is apparent even with the same machine temperature.
3. There is a definite increase in the amount of fuel used per 1,000 ft. of gas made. It seems that our saving of 3½ per cent should be considered as a minimum, as all variable conditions met with would have a tendency to increase this difference.

### Fuel

You will note that although the fuel came from the same source the analysis varied somewhat and as the ash and sulphur are the same you will find that on an ash and moisture free basis the volatile matter and the fixed carbon content are about in the same proportion. However, the B. T. U.'s of the fuels used on the two tests do not check exactly. This is probably due to sampling.

You will note that in the test without the backrun that the weight of the coke removed with the clinker was deducted and then returned to the generator, but in the case of the test with the backrun the coke removed with the clinker was simply picked out and returned directly to the generator without weighing.

The saving in fuel, as shown by the test, is only one pound per M on a dry basis and .4 pounds on the wet basis. The difference between the fuels used without the backrun and as shown on our average weekly test (Table 2) with the backrun and over a period of two months, shows about 1 pound, both on the wet basis. Now, with coke at $12 per ton and a sendout of 3,000,000 per day, this would save about $6,500 per year.

There is, however, a question in my mind that before our tests were made, we were getting as low as 29.9 pounds of fuel per M and it is probable that 31 pounds per M would be a closer figure to use and would just about double the amount of money saved per year on the coke alone, when the backrun is used.

### Oil

The oil results show a saving of 1.7 per cent, or about .05 gallon of oil per M, which again assuming 3,000,000 cu. ft. per day sendout and with 5.5c per gallon for oil, we would save over $2,600 per year.

### Checkerbrick

The checkerbrick in the carburettor are now in use (January 20) well over 1,700 running hours, and this is better than any results formerly obtained. The super-heater brick are now in use over 4,700 running hours. Observation shows that the brick in the carburettor are free of oil carbon and only show the familiar pink ash dust which is characteristic of the dirt found on the brick in the super-heater and the bottom layers of the carburettor.

### Steam

This item is the hardest of any of the items to check and, from the figures given, shows a loss of 22.3 pounds of steam per M, due to the backrun. This I think is hardly true, for if you take the difference between the pounds of steam used during a total cycle, it shows that the steam used with the backrun in use is about 15 per cent more than in the case of the first test, without the backrun, and the air blast is about 10 per cent more (the steam will be in proportion to the blast) while the increased output of the machine was 16 per cent, so I do not think that the excess steam as shown is correct. You will also note that during the backrun test the machine was lying idle 25 running hours more than on the first test and the blower running idle on the bypass consumes about 1,500 pounds of steam per hour. This should also be credited to the steam, and even then the steam is somewhat high.

Our present cycle is two minutes blow, three minutes run, using 190 pounds of steam per minute on the up-run, 230 pounds on the down-run, and the runs are split about 50-50. The last up-run is just long enough to insure proper conditions in the set at the time the valves are set for the blow.

### Gas

As far as we have gone into this problem of backrun, we find no difficulty in getting the necessary oil into the set on the up-run, in order to make a 550 B. T. U. We try to hold 540 B. T. U.'s or slightly under this figure at the works, to insure a 530 B. T U. or over at the testing station.

We have, the past few months, held a very uniform B. T. U., both at the plant and testing station, and far more regular than before the backrun was used. All of this, however, is not due to the backrun, but simply goes to show that there is no difficulty in keeping a constant B. T. U.

We have had difficulty in taking care of all the gas made from this machine when using the backrun, for at times we would make, over a period of several hours, 280,000 cu. ft. per hour, and due to the small connections between the machine and the relief hold-

er, a high back-pressure resulted. This will be corrected in the near future.

If a good fuel is used, one not too high in ash and which ash would not give too hard a clinker or form too much sidewall clinker, and with two cleans per day of about 1½ hours each, there is no doubt in my mind that an 11 ft. set, with automatic control, would make 5,000,000 cu. ft. of 540 B. T. U. gas per day.

Where increased capacity is needed this type of apparatus will give it. In the case of Worcester, we were just at a point where one machine was too small and with the second machine under fire and only used a few hours a day, the fuel per M went up, so with the backrun used on our machine helped out wonderfully, for since the test was made we have not had the second machine under fire.

There is no doubt in my mind that the backrun is profitable where increased capacity is needed; it will save fuel; there is no difficulty in getting three gallons of oil per M into the machine; the checkerbrick stays clean over a longer period of time and it will pay for itself, provided no waste heat boilers are used.

We also feel that if our demand was such that we had to run two machines steady, that the second machine would be equipped with a backrun apparatus.

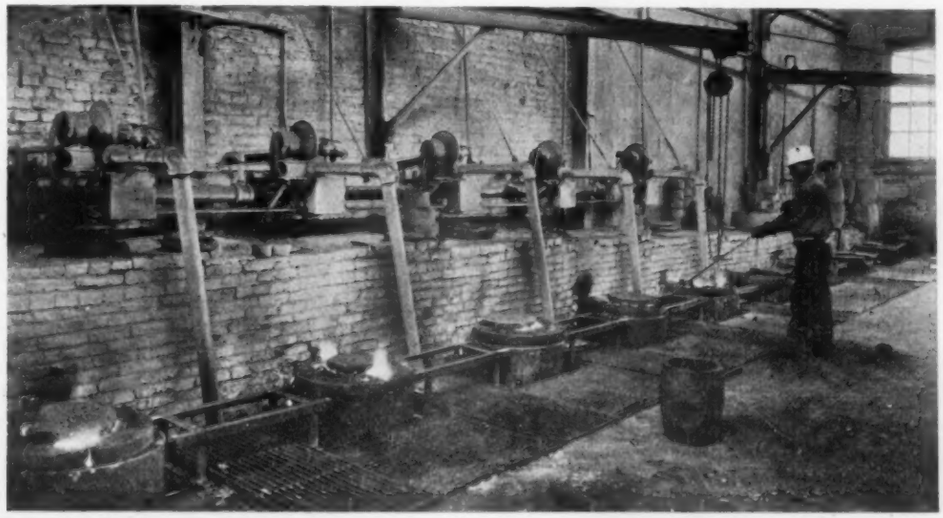
# How Gas Serves in Manufacture of Metallic Packing*

## A delicate operation performed by gas

*H. S. Christman*

THE United States Metallic Packing Company of Philadelphia has found gas heat a strong factor in obtaining a better product, cutting down waste, reducing operating time and generally extending its business.

It is a comparatively new line of business. The reason is interesting. It involves the radical change in steam engine practice that has taken place in the last few years. Formerly, when locomotive, marine and other types of steam engines operated on a pressure of 50 pounds and cylinder steam temperature of 300 degrees, hemp or rope packing was strong enough to imprison the steam in the cylinders. But when the pressure was advanced to 200 pounds and the steam superheated to 550 degrees, something better had to be substituted. White metal packing was the first improvement. Then a further step was taken, the combining of copper and lead in about equal proportions. This alloy, known commonly as the "50-50 Packing," is the product which is now being made in Philadelphia for world consumption.



### Operation of Melting Metals a Delicate One

Melting the copper and lead to make the packing is a delicate operation. The heat has to be just right, subject to absolute control. That such a requirement is met admirably with gas, the manufacturers have learned from experience. In the beginning they "farmed out" the melting to foundries using fuels other than gas. The result was such lack of uniformity that from 20 to 40 per cent of the material had to be rejected. Now, with their own foundry, rejections run from 8 to 10 per cent. Gas equipment has helped to make the difference.

*Reprinted from the U. G. I. Circle.

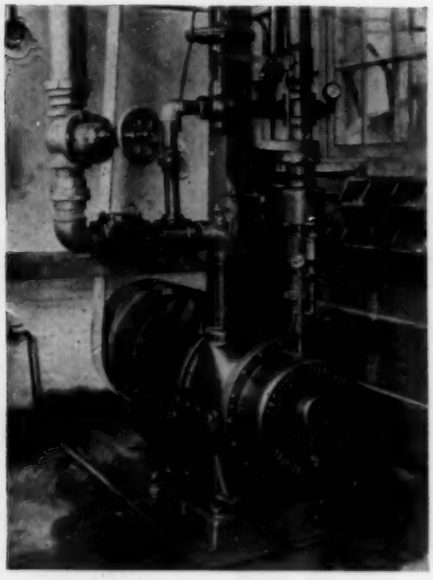
### Gas Made Good

The company rented a shop and gave our New Business Department an order for a Maxon brass melting furnace. This was in the nature of a trial. Of course, gas made good; it provided the accurate control which resulted in a uniform, homogeneous alloy. And the cost of the gas consumed was more than satisfactory on account of the great saving in material. An order for six more Maxon furnaces followed. Then, after a year and a half, the company was ready for further development.

We were consulted. Could we design a method of melting the metal with a one-valve control, insuring maximum efficiency combined with utmost comfort to the operatives? We could. Our recommendations were accepted, and the installation has been made.

### High Pressure System Installed

We installed a high-pressure gas system and five new furnaces. These furnaces are similar in design to the seven previously installed, but are equipped with high-pressure burners. This system supplies the one-valve control feature, which gives a constant ratio of mixture through all ranges of consumption. The gas at high pessure enters an inspirator which automatically entrains at the mixer the amount of air necessary for perfect combustion and delivers it to the burners in the various furnaces.



A Crowell compressor, equipped with a Chaplin-Fulton regulator, takes the city gas and boosts it to three-pounds pressure before it is delivered to the burners.

Each furnace is built to hold a No. 125 Dixon crucible, into which the raw metals are placed for melting. Each crucible has a capacity of 400 pounds of metal per melt.

While these high-pressure furnaces are now the mainstay of the foundry, the individual Maxon furnaces have not been disturbed, and at rush times they are started up for auxiliary service.

### Operating Results

Each furnace operates on an average gas consumption of 550 cubic feet per 100 pounds of metal melted. Since the output has run as high as 240,000 pounds of metal a month, it will be seen that the furnaces supply a nice bit of industrial business for us.

How the business has grown since the introduction of gas in the process is shown by these figures: In that the gas company has been so thoughtful and appreciative of their coming.

In 1920 the gas consumption amounted to 1,222,200 cubic feet; in 1921 it rose to 6,144,600; the following year it was 10,748,500, and for the first five months of 1923 the consumption was 8,310,700 cubic feet.

The packing is moulded into beveled rings of various sizes to fit all sizes of piston rods. While not soft, yet it is sufficiently pliable to receive the full pressure of steam in the cylinder and prevent it from escaping along the piston rods. It seems to be proof against everything but water, an enemy against which no metallic packing yet devised is able to stand up very long.

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## WATER GAS MANUFACTURE

In the operation of a water gas producer, the sensible heat of the water gas is employed to distil the material in the retort, but it is desirable to raise the temperature of the water gas above the normal temperature at which the gas leaves the producer—i. e., 450 to 550 deg. C. In this invention, the gas produced during the blow period, or a part of it, is burned in the heaters or regenerators, and the water gas is passed through the heaters before it enters the retort. The temperature of the water gas may thus be raised to about 1,000 deg. C., and two or more producers may be employed to insure continuous working. The steam, or part of it, employed in the water gas producers may be produced or superheated by passing through a separate receptacle containing the hot coke discharged from the retort. The water gas is carburetted in passing through the retort, thus increasing its calorific value, and the enriched gas may be passed again through the regenerators and mixed with the water gas. Any hydro-carbon vapor is thus converted into permanent gases. By this invention, 30,000-,40,000 cubic feet of gas of 370-400 B. T. U. per cubic foot can be obtained per ton of coal, together with 18-20 gallons of fuel oil and some low calorific power gas, compared with 12,000-20,000 cubic feet of gas of 450 B. T. U. and 8-10 gallons of tar and some coke obtained by the usual process.—(British Patent No. 207,623.)

# Current Market Prices

**COALS (By Courtesy of Coal Age)**

**A. Bituminous.**

(Spot prices, F. O. B., mines, net tons).

| High Volatile, Eastern | Market | Price |
|---|---|---|
| Pool 54-64 (Gas Standard)) | New York | $1.50 to $1.75 |
| Pittsburgh screened gas | Pittsburgh | 2.50 to 2.65 |
| Pittsburgh gas, mine run | Pittsburgh | 2.25 to 2.35 |
| Kanawha lump | Columbus | 2.50 to 2.75 |
| Kanawha mine run | Columbus | 1.50 to 1.75 |
| West Virginia lump | Cincinnati | 2.75 to 3.00 |
| W. Virginia gas mine run | Cincinnati | 1.65 to 1.85 |
| **Midwest** | | |
| Indiana 4th vein lump | Chicago | 3.00 to 3.25 |
| Indiana 4th vein mine run | Chicago | 2.50 to 2.75 |
| **South and Southwest** | | |
| Big Seam lump | Birmingham | 3.75 to 4.00 |
| Big Seam mine run | Birmingham | 1.75 to 1.85 |
| Southeast Kentucky lump | Louisville | 3.00 to 3.50 |
| Southeast Kentucky mine run | Louisville | 1.65 to 2.00 |

**B. Anthracite.**

(Spot prices F. O. B. mines, gross tons),

| | Market | Freight rates | Independent | Company |
|---|---|---|---|---|
| Egg | New York | $2.34 | $8.50 to $9.25 | $8.75 to $9.25 |
| Egg | Philadelphia | 2.39 | 8.50 to 10.00 | 8.75 to 9.25 |
| Egg | Chicago (net tons) | 5.06 | 7.50 to 8.80 | 8.00 to 8.35 |

**COKE (By Courtesy of Iron Trade Review).**

| | |
|---|---|
| Connellsville, furnace | $3.75 to $4.25 |
| Wise County, furnace | 4.50 to 5.75 |
| Alabama, furnace | 5.25 to 6.25 |
| Foundry, Newark, N. J., del | 10.91 |
| Foundry, Chicago, ovens | 12.50 |
| Foundry, Boston, delivered | 12.50 |
| Foundry, St. Louis | 12.50 |
| Foundry, Granite City, Ill | 12.50 |
| Foundry, Alabama | 5.00 to 6.50 |

**PETROLEUM (By Courtesy of Oil, Paint & Drug Reporter)**

(Prices at wells, per bbl.)

| | |
|---|---|
| **Pennsylvania—Ohio—West Virginia.** | |
| Cabell, West Virginia | $2.05 |
| Corning, Ohio | 1.80 |
| Lima | 1.13 |
| Pennsylvania | 4.00 to 4.50 |
| Wooster, Ohio | 2.00 |
| **Indiana—Illinois.** | |
| Illinois | 1.92 |
| Indiana | 1.93 |
| **Oklahoma—Kansas.** | |
| Healdton | .90 |
| Mid-continent (low gravity) | 1.00 |
| **Gulf Coast.** | |
| Gulf Coast, Grade A | $1.65 |
| Gulf Coast, Grade B | 1.40 |
| Pierce Junction | .65 |

**GAS OILS.**

| | |
|---|---|
| Gas Oil, Bayonne, bulk gal. | 5½c |
| Gas Oil (32-36) Illinois-Indiana, gal. | 3¾ to 4 c |
| Gas Oil (32-36) Oklahoma, gal. | 3¾ to 4 c |
| Gas Oil (32-36) Gulf Coast, gal. | 4½ to 5 c |

**PIPE AND FITTINGS—CAST IRON GAS PIPE.**

(By Courtesy Iron Trade Review.)

| | |
|---|---|
| Four-inch, Chicago | $66.20 to $67.20 |
| Six-inch and over, Chicago | 62.20 to 63.20 |
| Four-inch, Birmingham | 56.00 to 57.00 |
| Six-inch and over, Birmingham | 52.00 to 53.00 |
| Four-inch, New York | 70.60 to 71.60 |
| Six-inch and over, New York | 65.60 to 66.60 |
| Standard fittings, Birmingham, base | 115.00 |

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20.

**BY-PRODUCTS**

**(By Courtesy of Oil, Paint and Drug Reporter)**

| | |
|---|---|
| Ammonia aqua, 16 deg. drums lb. | 5 to 5½c |
| Ammonia aqua, 20 deg. drums lb. | 6¼ to 7 c |
| Ammonia aqua, 26 deg. drums lb. | 7 to 7½c |
| Ammonia squa, anhydrous cylinder, lb. | 30 to 36 c |
| Ammonium sulphate, bulk F. O. B. Works, per 100 lbs. | $2.90 to $3.00 |
| Potash prussiate, yellow casks, lb. | 20 to 21 c |
| Potash prussiate, red casks, lb. | 45 to 48 c |
| Soda prussiate, yellow casks, lb. | 13 to 13½c |
| Soda sulphocyanide, barrels, lb. | 45 to 55 c |

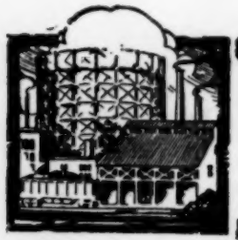
**COAL TAR BASIC PRODUCTS.**

**(By Courtesy of Oil, Paint and Drug Reporter)**

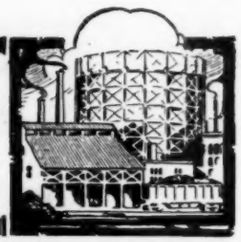
| | |
|---|---|
| Benzol C. P. tanks, works, gal. | 25 to 30c |
| Benzol, drums, gal. | 30 to 35c |
| Benzol, 90% tanks, works, gal. | 23 to 28c |
| Benzol, 90% drums, gal. | 28 to 33c |
| Napthalene, flake, barrels, lb. | 6¼ to 7c |
| Napthalene, crushed bags, lb. | 5½ to 6c |
| Solvent Naphtha, water white works, gal. | 28c |
| Solvent Naphtha, drums, works, gal. | 33c |
| Solvent Naptha, Crude Tanks, works, gal. | 25c |
| Solvent Naphtha, drums, works, gal. | 30c |
| Toluene, C. P. tanks, works, gal. | 31c |
| Toluene C. P. drums, works, ga l. | 36c |

## Haverhill Gas Light Co. Enlarging Plant

The Haverhill (Mass.) Gas Light Company has purchased the property and franchises of the Amesbury and Salisbury Gas Company, which serves a district of about 20,000 populatoin in Massachusetts. The Haverhill company has also entered into a contract with the Newburyport Gas and Electric Company to furnish the entire gas supply to that company, and for this purpose will lay a high-pressure gas main from its present main in Merrimac to Amesbury, where the new main will join the line which the Newburyport company is laying. The Haverhill company is enlarging its plant by the installation of a 10 ft. carburetted water gas set with auxiliaries, and a large extension to the present compressing plant. The total cost of the work will be about $220,000 and contract has been awarded Stone & Webster, Inc., of Boston, Mass.



# NEWS OF THE GAS INDUSTRY



### Bond Issue

Los Angeles, Cal.—An issue of $8,000,000 Los Angeles Gas & Electric Corporation general and refunding mortgage 6 per cent gold bonds, series "H," due 1942, is offered to local investors by a syndicate composed of Bond & Goodwin & Tucker, Inc., E. H. Rollins & Sons, Mercantile Securities Company, Harris Trust and Savings Bank and Blyth, Witter & Co. The bonds, callable after 1932 at 110 and accrued interest, less 1 per cent each year thereafter, are offered at 99 and interest.

Security of the issue is provided by a general mortgage on property conservatively valued at over $64,400,000, or more than 1.74 times the company's entire funded debt. This valuation includes the additions provided for by this financing, together with the proceeds from the authorized issue of $10,000,000 preferred stock.

Net earnings for the year ended November 30, 1923, totalled $4,685,974.86, after deduction of operating expenses and taxes from gross earnings of $12,460,826.16. Net earnings are equivalent to more than 2.13 times interest requirements. Deduction of annual interest requirements, including this issue, leaves a balance for depreciation, dividend and surplus of $2,484,554.86.

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### John Bucklin Becomes President of Fayettville Light & Power Company

Fayettville, N. C.—John Bucklin has recently been elected president of the Fayettville Light & Power Company, to succeed the late William W. Randolph. Mr. Bucklin's headquarters will be at 12 Broad street, Red Bank, N. J. Julian S. Jones has been elected vice-president of the same company to succeed Mr. Bucklin.

### Personnel Changes in the Department of the Interior

Walter W. Scott, Deputy Supervisor of the Department of the Interior for oil and gas operations in the Gulf Coast district, has been transferred by the Bureau of Mines to a similar position in the Rocky district, with headquarters at Casper, Wyoming. Mr. Scott assumes the position made vacant by the resignation of Charles E. Beecher who has become associated with the Empire Gas and Fuel Company with headquarters at Bartlesville, Oklahoma.

H. B. Hill, engineer in charge of the Bureau of Mines office in the Salt Creek, Wyoming, oil field, has been promoted to Deputy Supervisor of the Gulf Coast district, assuming the position vacated by the transfer of Mr. Scott.

J. S. Ross, attached to the Washington, D. C., office of the Bureau of Mines, has been appointed engineer in charge of oil and gas supervisory work centering at Shreveport, Louisiana.

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### New Installation at Catskill, N. Y.

The new coal gas plant just installed at the Catskill plant of the Upper Hudson Gas & Electric R. R. Co. is now in full operation.

The work of installing the equipment was accomplished without interference with the old plant, although a portion of the apparatus was utilized in the new layout. The work was performed after the design of Geo. H. Smith, gas engineer of the Central Hudson System of Poughkeepsie, and the installation was under the supervision of Mr. Reger, field engineer.

The carbonizing equipment, consisting of two benches of 6's, was furnished by the Russell Engineering Co. of St. Louis, and the balance of the equipment by the New York Engineering Co., New York.

### Stacey Bros. Gas Construction Co. Reopens New York Office

The Stacey Bros. Gas Construction Co. of Cincinnati, Ohio, have recently reopened a New York office at 350 Madison avenue.

Paul C. Rodgers, vice-persident of the Phoenix Iron Works Co., of Meadville, Pa., has been appointed as eastern sales manager. Mr. Rodgers was formerly assistant superintendent of plant manufacture in the Stacey Brothers Gas Construction Company.

Besides his knowledge of gas construction work, Mr. Rodgers brings with him an extensive experience in the manufacture and selling of oil refinery equipment, gained as vice-president of the Phoenix Iron Works Company.

Stacey Brothers Gas Construction Co. is well known in the gas industry as one of the oldest concerns engaging in gas holder construction.

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### Public Service Company to Improve Equipment

The Public Service Company of Colorado will spend in the city of Denver, during the year, $2,221,447 for improved methods and enlargements. A new hydro-gas plant at Seventh and Wewatta streets, now in the course of construction, and expected to be in operation by June, will cost $825,000 and to meet the growing demands upon its gas departments another $1,341,886 will be necessary. Then there are more meters required; $74,250 will be spent for the gas meter, while the sum of $71,708 will go for electric meters. Service pipes to bring the gas into homes will cost $76,000, while new gas mains call for $62,275. Another $20,000 for renewing the service into houses where the present facilities are inadequate. To this add $28,000 for new regulators. Then there is another $30,000 that must be spent to replace some main line pipes.

### Combustion Utilities Opens Pittsburgh District Office—Walter De Fries Takes Charge Steel City Territory

Under the management of Walter de Fries, the Combustion Utilities Corporation, a subsidiary of the H. L. Doherty interests, has opened a Pittsburgh district office.

The Combustion Utilities Corporation, through its various ramifications, mergers and consolidations, has created in one organization the nucleus for a "General Electric" of the gas field.

This company is now prepared to furnish to the fuel consuming industries every type of industrial heating apparatus, from a small oven furnace to a large open hearth or malleable iron installation.

The research departments located in Long Island City are in charge of combustion and chemical engineers, who through years of research and experience have the knowledge necessary for preparing and providing data for any particular heating operation.

The Combustion Utilities Corporation was first created to make available to the territory served by the H. L. Doherty Gas Companies the facts and data gained in the operation of central gas stations insofar as this data pertained to the correct applications of gas for industrial furnaces.

At present the Pittsburgh office is located in Rooms 966-968, Union Trust building.

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### Public Service Corporation Issues Yearly Report

A comparative statement of combined results of operations of Public Service Corporation of New Jersey and subsidiary companies for the month of December, 1923, and for the twelve months ending December 31 has just been issued. For December the operating revenue of subsidiary companies was $7,570,835.05 as against $7,239,307.42 in the same month for 1922, showing an increase of $331,527.63. The net increase in surplus before dividends was $1,254,669.93 as against $669,085.99 for the like period in 1922.

For the twelve months ending December 31 the operating revenue of subsidiaries was $79,07,882.48, an increase of $750,919.94 over the twelve preceding months, and the net increase in surplus before dividends was $5,667,335.37 as against $5,287,464.89, a gain of $379,870.48.

Due to strike of employees the Public Service Railway Company and Public Service Railroad Company did not operate during the period from August 1 to September 20, 1923.

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### Technical Section of A. G. A. Makes Report of Progress

At a recent meeting of the managing committee of the Technical Section of the American Gas Association, the following progress in committee work was announced:

Mr. Bauer, chairman of the Carbonization Committee, reported organization of all sections, except the section on Complete Gasification of Coal. From present indications this part of the work will be handled in the general report of the committee and simply cover such definite progress as may develop during the year.

Mr. Fletcher reported for the Coke Committee that the first of a series of Coke Chats had been forwarded to company members of the A. G. A. and has met with favorable comments.

The Managing Committee approved the periodic sending out of these bulletins, which are designed to sell the gas manager on the intrinsic value of coke for the domestic and industrial market. Samples of good coke advertising will be distributed with succeeding copies of the Coke Chats.

The Coke Committee program also includes arrangements for tests at Lowell and St. Louis on the effect of mixing certain percentages of low volatile and high volatile coal in retort carbonization; inducing manufacturers of coke handling equipment to exhibit at the annual convention; and co-operation with furnace manufacturers in the proper design of furnaces for burning coke.

Mr. Kennedy reported for the Committee on Water Gas (carburetted and uncarburetted), the organization of the committee into an Operators' Section, Builders' Section and Uncarburetted Water Gas Section, with Messrs. O. B. Evans, H. L. Underhill and J. H. Warnick as chairmen. All sections are working on programs laid out for them and it is anticipated definite progress can be reported at the next meeting.

It was suggested by the Managing Committee that the Water Gas Committee do not consider report on the Tully Process but that attention might well be given to the consideration of uniform and proper size fuel in water gas practice.

H. W. Hartman, secretary, read a report from Mr. Benesh, indicating good progress in the test work of the Committee on Measurement of Large Volumes of Gas and a report from Mr. Walton Forstall advising that the Committee on Standardization of Capacities of Consumers' Meters was still working to bring the users and manufacturers of meters to an agreement on minimum standard meter capacities.

Complete organization of the following committees was also reported by the secretary:

Cast Iron Pipe Standards Committee—Walton Forstall, chairman.

Chemical Committee—Dr. A. R. Powell, chairman.

Condensing and Scrubbing Committee—F. W. Steere, chairman.

Distribution Committee—J. D. von Maur, chairman.

Disposal of Waste Committee—R. G. Porter, chairman.

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### Tune In on WTAT to Hear Cooney Talk on Gas

E. J. Cooney, sales and service manager of the Lowell Gas Light Company, has been requested to broadcast a talk on gas from station WTAT of the Boston Edison Company, Monday evening, February 25, at 8:45 p. m. Mr. Cooney promises to give a rather novel and interesting talk. He is going at the problem from an entirely different angle and hopes in this way to interest a number of unseen and unknown hearers.

Those interested in the gas business who have radios are asked to tune in on WTAT at the time mentioned, as Mr. Cooney states that he desires to talk to a large audience.

### Gas Consumption Growing

The Public Service Company of Colorado has just published a statement covering a three months' period, ending December 31, 1923. Net earnings of $852,209 are shown and after payment of interest there was a net income available for dividends and the usual reserves of $497,185. Tabulated statement follows:

| | |
|---|---|
| Gross earnings from operation | $2,131,438.96 |
| Operating expenses, maintenance & taxes | 1,279,229.24 |
| Net earnings from operation | 852,209,72 |
| Non-operating income | 26,872.81 |
| | 879,082.53 |
| Total interest charges | 381,897.49 |
| | $497,185.04 |

Sales of gas for the three months show an increase over the corresponding period of 1922 of 32 per cent. This gain is believed to be due to the increased use of gas for house heating, for hotels, restaurants and for general industrial purposes.

### To Issue $375,000 in Bonds

Sanford, Fla.—The city of Sanford has recently voted to issue the sum of $375,000 in bonds for public and municipal improvements, of which amount it is planned to spend approximately $160,000 in the establishment of a modern plant for the production of artificial gas to serve the citizens of Sanford and adjacent territory. The Mayor of Sanford is in charge of the plans at present. Further details of the construction plans for the gas plant are not as yet available.

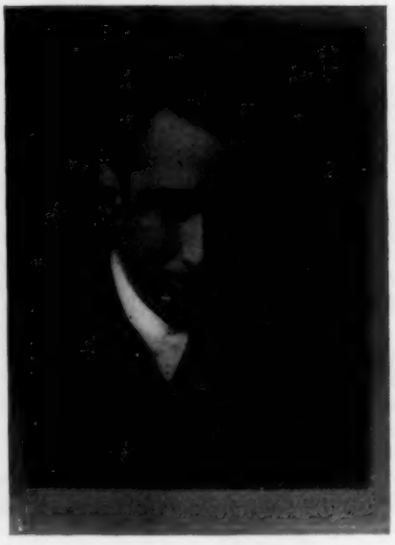
### New Construction to Be Started in Daytona

Daytona, Fla.—City officials of Daytona advise the American Gas Journal that the Massachusetts Gas & Lighting Company, operating the gas company at this place, is contemplating the construction the early part of this year of a gas reservoir of large capacity to serve the consumers of the Daytona district. The report emanates from G. K. Duskin of Boston, Mass., general manager of the company.

### L. L. Campbell Opens Office in Chicago

L. L. Campbell, who has been sales manager for the Radiant Heat Corporation of America for the last three years, will shortly open a Chicago office and will be the distributor of the Kennedy Radiant Heater throughout the Middle West.

Mr. Campbell has had a wide experience in the gas field. He started his business career as a plumber and steamfitter in his home town of Hampton, Va. His next connection was in the New Business Department of the Public Service Gas Company of Trenton, N. J. Later he was associated with the Consolidated Gas Company of Baltimore, and worked in their different gas properties, finally becoming distribution engineer for the first plant built at Cape May, N. J.



L. L. Campbell

He then entered the employ of C. H. Geist & Co. and went to Atlantic City to assist Walter A. Allison, who was then consulting engineer, and practically rebuilt the distribution system for the Atlantic City Gas Company. Mr. Campbell is credited with being one of the best hotel gas appliance salesmen in the country, having installed the greatest number of hotel equipments in the United States.

Some time later Mr. Campbell went to the Pacific Coast, and became industrial engineer for the Pacific Gas & Electric Company. During the war he came East and was assigned by the Government to the staff of engineers controlled by the American Appraisal Company, placing valuations on properties that the United States Government was taking over, and also accounting for raw materials. Mr. Campbell then became associated with the James B. Clow Company, covering the central west territory as a consulting engineer. Mr. Campbell has given much time to the study of heat and is one of the leading heat engineers of the country.

### Lowell Gas Light Co. Gives Demonstration to Vocational School

Lowell, Mass.—An interesting demonstration of the proper method of using a gas range and oven heat regulator has recently taken place in the Girls' Vocational School in Lowell, Mass.

Sales Manager E. J. Cooney, of the Lowell Gas Light Company, arranged with Miss Esther Downing, principal of the Girls' Vocational School, and her assistant, Miss Ruberta Bramhall, to have John J. Wholey of the jobbing department give talks and demonstrations to groups of pupils.

In the afternoon there were classes on seven different days, with an attendance of more than a hundred pupils of the High School.

Four evening a week for five weeks cooking classes were held in the various school buildings throughout the city attended by young housekeepers who had not had much experience and young engaged women who were anxious to learn to cater to the digestion rather than the indigestion of their husbands to be.

More than seven hundred women and girls attended these evening sessions.

Mr. Wholey went into detail, showing the right way and the wrong way to burn gas in the oven and through the top burners of the gas range. He also gave a greater understanding of the kitchen happiness to be obtained through the use of oven heat regulation.

And last, but not least, Mr. Wholey showed those attending the classes the benefits to be derived through keeping the gas range clean at all times.

At the close of the course of lectures Principal Downing went on record as saying that it was the most enjoyable work she had been through since her connection with the school.